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THE ROLE OF TYPE XXVI COLLAGEN IN SCAR HEALTH

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ABOUT ARTICLE

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Abstract: Caesarean section (CS) is an operative method of delivery that is widely used at the moment. According to the Ministry of Health for 2022, we registered 932.2 thousand births, which is the highest figure since independence. The total fertility rate (number of births per 1,000 inhabitants) was 26.2 – in 2022, which falls into the category of countries with a "moderately high" fertility rate. The frequency of surgical births in Uzbekistan is about 23% of all births. The purpose of the study was determined the role of the level of type XXVI collagen in the blood and its influence on the viability of the surgical scar, to improve the tactics of managing women after cesarean section. 103 pregnant women and the outcomes of their births were studied. Research and scientific work were carried out for 2020-2022. on the basis of the obstetric department of the multidisciplinary clinic of SamSMU. The average concentration of type XXVI collagen in the main group during pregnancy was 328.22±17.5 ng/ml, and after childbirth - 363.1±48.4 ng/ml, while in the comparison group there was a two-fold decrease. This shows its specificity to the organs of the reproductive system, as well as its role in assessing their condition, including the condition after a surgical scar.

INTRODUCTION

According to statistics from the Republic of Uzbekistan for 2017-2022, from 5100 to 5897 women per year give birth surgically, and the number of women with a uterine scar increased from 568 to 618, with the predominant number of women with one scar. The majority of women who completed childbirth through CS corresponded to district medical associations. Among them, primiparous women ranged from 10.5% to 17.7%. During pregnancy, 77.2% of women had various somatic diseases, such as: obesity, myopia, chronic pyelonephritis, chronic gastritis, anemia, hypertensive conditions, neurocirculatory dystonia, hydronephrosis, varicose veins.

According to the literature, from 13.0 to 50.0% of women can be individually recommended to give birth through the birth canal after cesarean section (L.S. Logutova, 2006; Oden M., 2006). The frequency of favorable outcomes of vaginal birth after CS is much higher, although the data is variable and ranges from 80.0 to 90.0% of women with a uterine scar (L. S. Logutova, 2006; M. Oden, 2009). At the same time, the issue of natural delivery of women with a uterine scar has not yet been fully studied. Risk factors and management tactics for women with uterine scars are not well developed. Therefore, it is necessary to develop methods for studying the condition of women with a uterine scar, tactics for managing pregnancy and childbirth, as well as improving the prevention of complications and their prediction.

Purpose of work. The role of the level of type XXVI collagen in the blood and its influence on the viability of the surgical scar was determined to improve the tactics of managing women after cesarean section.

MATERIALS AND METHODS

The study is based on a clinical and laboratory examination of 103 women of reproductive age with a history of one uterine scar, who were under observation in the department of obstetrics and gynecology of the multidisciplinary clinic of Samarkand State Medical University for the period from 2020 to 2022. During clinical and laboratory examination, pregnant women were divided into 2 groups: Group I - with a stable scar (n=66), Group II with an incompetent scar (n=37).

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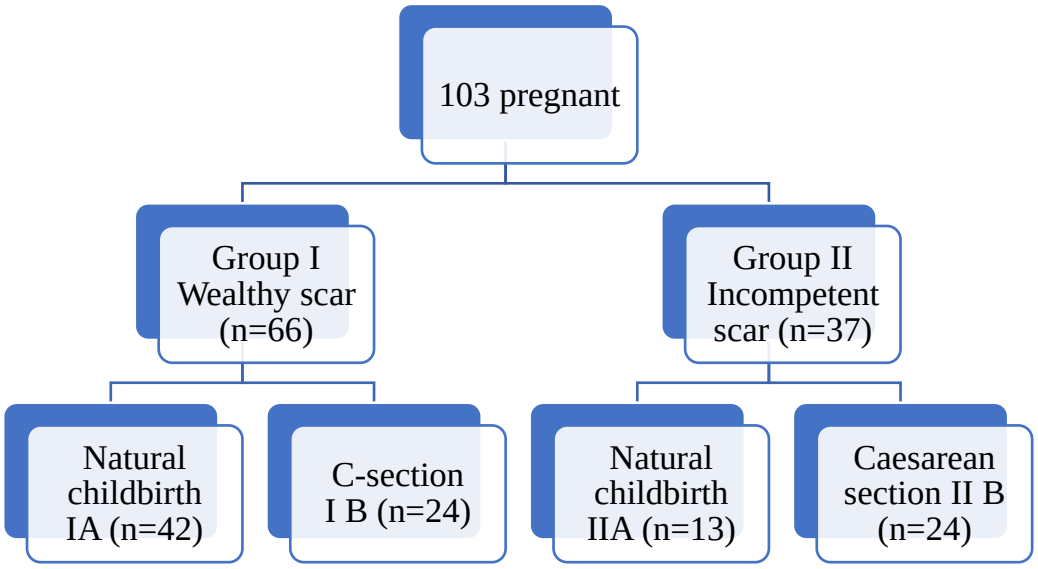

Figure 1. Distribution of pregnant women according to the condition of the postoperative scar

Each of these groups was divided into subgroups according to birth outcomes: "A" - with natural birth, "B" - birth by cesarean section. Also, 68 postpartum women were included in the main group for rehabilitation, and the remaining 35 were included in the comparison group for clinical assessment of the condition of the scar in the postoperative period and rehabilitation.

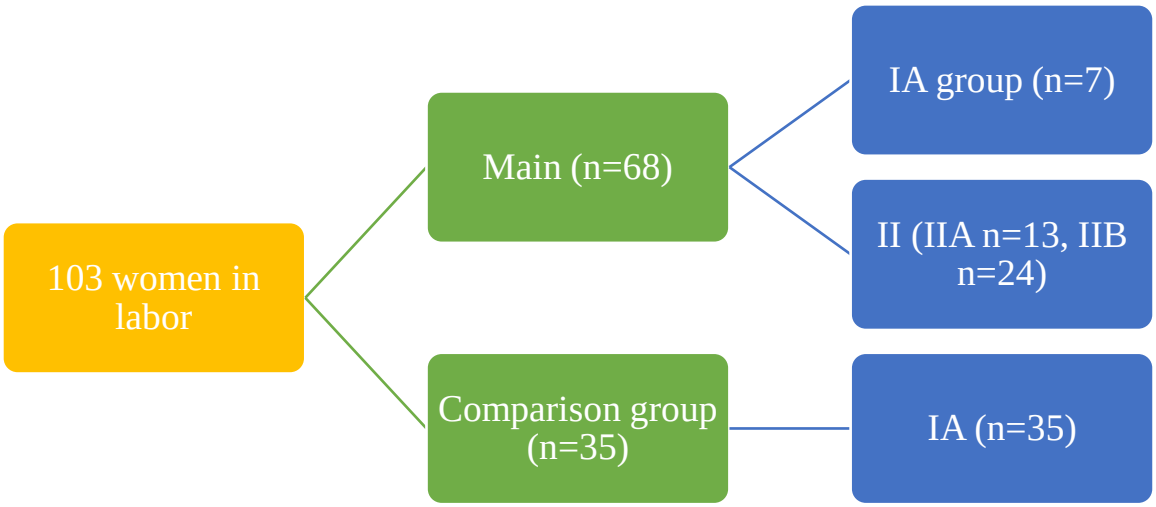

Figure 2. Distribution of postpartum women by rehabilitation method

The work used general clinical research methods (general blood and urine analysis, vaginal smear, assessment of hemostasis), as well as special research methods, including: laboratory research methods (determining the amount of type XXVI collagen by ELISA, morphological examination of the scar area), instrumental methods (ultrasound, Dopplerometry of uterine vessels).

Variation-statistical processing of the study results was carried out using the Statistica 6.0 program, determining the main indicators of variation: mean value (M), mean errors (m), standard deviation (p). The reliability of the results obtained was determined using the Student's test. The difference between two means is considered significant if the p-parameter is less than 0.05. The confidence level was at least 95%.

RESULTS

Research and scientific work was carried out for 2020-2022. on the basis of the obstetric department of the multidisciplinary clinic of SamSMU, based on the analysis of the results of a comprehensive examination and dynamic observation of 103 women of reproductive age with one scar on the uterus after cesarean section, during pregnancy and in the postpartum period. The age of the women ranged from 18 to 40 years, the average age was 24.5±4.1 years. The intergravid period of pregnant women (from the last CS operation to the current pregnancy) ranged from 1 to 3 years (on average 1.8±0.8 years).

Information about the indications for the first CS operation, important when assessing the possibility of vaginal delivery, among which two main ones predominated: anomalies of labor that are not amenable to drug correction (42.64% in the main group and 42.85% in the comparison group) and progressive intrauterine fetal hypoxia (29.41% and 25.71%, respectively).

In the main group, 20.5% of pregnant women showed a decrease in blood hemoglobin levels from normal (91.1±1.24 g/l on average for the group). A low level of leukocytes was detected in 8.82% of pregnant women in the main group (group average 5.89±1.31x103/mm3). This phenomenon is associated with their poor nutrition and complications during pregnancy in the form of vomiting of pregnancy, observed at the beginning of pregnancy, since the body did not receive enough nutrients, trace elements and vitamins.

The level of collagen type XXVI was determined by indirect enzyme immunoassay on polystyrene plates (ELISA test) according to the classical method. The choice of ELISA as the main method used in our work is due to its convenience and relative ease of implementation, high specificity and sensitivity.

Among pregnant women, based on the results of determining genital collagen type XXVI by enzyme immunoassay, a decrease in the expression of type XXVI collagen in the main group was revealed, which leads to an increase in the activity of tissue destruction processes.

1- table

Concentration of type XXVI collagen in pregnant women in study groups, ng/ml

Indicators	Main group (n=68)		Comparison group (n=35)		P
	During (36-38 weeks) pregnancy	After rehabilitation (3 months after birth)	During (36-38 weeks) pregnancy	3 months after birth	
Average	328,22 ± 17,5*	363,1±48,4	322,28 ± 34,5*	164,12 ± 6,25	<0,01
Maximum	495,0*	512,0	492,0*	256,0	<0,01
Minimum	231,0*	243,0	247,0*	120,0	<0,01

Comparing the mean values, we found significant (p = 0.01) differences between the main group and the comparison group after rehabilitation measures. After the first CS, the average levels of collagen type XXVI did not differ in both groups during the second pregnancy, but after delivery its indicator showed significant changes in the two groups. Thus, in the comparison group, the average concentration of type XXVI collagen was 322.28±34.5 ng/ml; upon re-examination 3 months after birth, a significant decrease in the average concentration of type XXVI collagen was noted, which amounted to 164.12±6.25 ng/ml .

The average concentration of type XXVI collagen in the main group during pregnancy was 328.22±17.5 ng/ml, and 3 months after birth - 363.1±48.4 ng/ml. This indicates the effectiveness of rehabilitation procedures. The data obtained show that collagen type XXVI can be taken as a predictor of the choice of method of delivery.

Thus, it can be noted that there is an improvement in the concentration of type XXVI collagen in postpartum women who have undergone a full course of rehabilitation measures after childbirth, which, in turn, indicates a better restoration of damage to the genital organs, including the condition of the scar.

CONCLUSION

The average concentration of type XXVI collagen in the main group during pregnancy was 328.22±17.5 ng/ml, and after childbirth - 363.1±48.4 ng/ml. In the comparison group, the average concentration of type XXVI collagen was 322.28±34.5 ng/ml; a significant decrease was noted 3 months after birth, which amounted to 164.12±6.25 ng/ml. This shows its specificity to the organs of the reproductive system, as well as its role in assessing their condition, including the condition after a surgical scar.

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