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## THE EFFECTIVENESS OF REHABILITATION MEASURES IN WOMEN WITH A UTERINE SCAR

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### ABSTRACT

CS often has a certain impact on the subsequent reproductive activity of women: infertility, miscarriage, spontaneous abortion, menstrual irregularities. The study of its long-term consequences and the development of rehabilitation after cesarean section is a pressing issue in obstetrics and gynecology. The purpose of the study is to develop methods of rehabilitation in the postoperative period for the clinical assessment of the condition of women after cesarean section in order to improve subsequent outcomes of pregnancy and childbirth. The study was conducted at the Department of Obstetrics and Gynecology No. 1 of SamSMU for 2020-2022 on 103 women of reproductive age. Rehabilitation measures (magnetic therapy and ultrasound therapy) led to an improvement in the general condition of women; in the main group, an increase in the amount of type XXVI collagen by 20% was observed; according to ultrasound data, there was a rapid restoration of the postoperative area, doubling during this period.

### KEYWORDS

Cesarean section, uterine scar, pregnancy, rehabilitation, magnetotherapy, ultrasound therapy.

### INTRODUCTION

CS often has a certain impact on the subsequent reproductive activity of women: infertility, miscarriage, spontaneous abortion, menstrual irregularities. In addition, a CS cannot always ensure the birth of a healthy child. Thus, in late pregnancy, infectious diseases of the mother, severe hypoxia, and especially in cases of very early premature birth, the health of the unborn child depends on many factors. Although CS for preterm birth reduces perinatal mortality, it does not affect the incidence of perinatal morbidity, especially in children born with low and very low birth weight. The health of children born before the 32nd week of pregnancy is often associated with underlying maternal diseases (extragenital, infectious diseases, etc.), as well as pregnancy complications (severe gestosis, premature separation of a normally located placenta).

The study of its long-term consequences and the development of rehabilitation after cesarean section is a pressing issue in obstetrics and gynecology.

The purpose of the study: to develop methods of rehabilitation in the postoperative period for the clinical assessment of the condition of women after cesarean section in order to improve subsequent outcomes of pregnancy and childbirth.

Material and research 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 obstetrics department 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). Each of these groups was divided into subgroups according to birth outcomes: "A" - with natural birth, "B" - birth by cesarean section. According to the method of rehabilitation, women were divided into a main group (n=68 - using rehabilitation methods) and a comparison group (n=35 - treated according to the standard).

All laboratory studies were carried out in the laboratory department of the multidisciplinary clinic of SamSMU, instrumental methods - in the radiology department, morphological research - carried out by Associate Professor of the Department of Pathological Anatomy B.S. Abdullaev. Type XXVI collagen was determined by ELISA in the private clinic "Biostomnur" during pregnancy, 3 and 6 months after birth.

Ultrasound therapy and magnetic therapy were used as rehabilitation methods. The duration of the procedure was up to 15 minutes for each zone, once a day on an outpatient basis for 10 days. The first ultrasound therapy procedure began 15 days after birth, and magnetic therapy on the 4th day after birth. The procedure was repeated after 6 months.

Variation-statistical processing of the research results was carried out using the Statistica 6.0 program, determining the main indicators of variation: average

values (M), average 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%. The correlation between the indicators was calculated using the Excel 2010 table, the correlation coefficient was calculated according to Spearman.

Research results and discussions: In the main group, 20.5% of pregnant women showed a decrease in blood hemoglobin levels from normal ( $91.1 \pm 1.24$  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  $5.89 \pm 1.31 \times 10^3/\text{mm}^3$ ).

According to ultrasound data, in 29 (42.64%) women in the main study group and in 35 (100.0%) women in the comparison group, ultrasound revealed the presence of various elements located between full-blooded capillaries and small-caliber capillaries, indicating the “consistency” of the uterine scar.

37 (54.41%) pregnant women in the main study group had an echo picture of the scar on the uterus, characterized by the presence of atrophy and the formation of a thin fibrous cover, a defect in the uterine wall in the area of the scar, and inadequate blood circulation along the scar.

During ultrasound 3 months after birth, the thickness of the uterine wall in the area of the scar in the postpartum women of the comparison group was  $1.9 \pm 0.08$  mm (1.6; 4.0); they were diagnosed with defects in the scar area during Dopplerography, whereas in the main group the average thickness of the scar area was  $2.4 \pm 0.04$  mm (2.0; 4.0), the scar area was assessed as thin. 6 months after birth, the echographic thickness of the scar area was  $3.6 \pm 0.03$  mm in the main group and  $3.2 \pm 0.05$  mm in the comparison group. As can be seen from Fig. 1 regeneration of the scar area was positive in the main group for 6 months, but in the comparison group the regeneration process was slower and showed negative dynamics after 3 months and positive dynamics after 6 months.

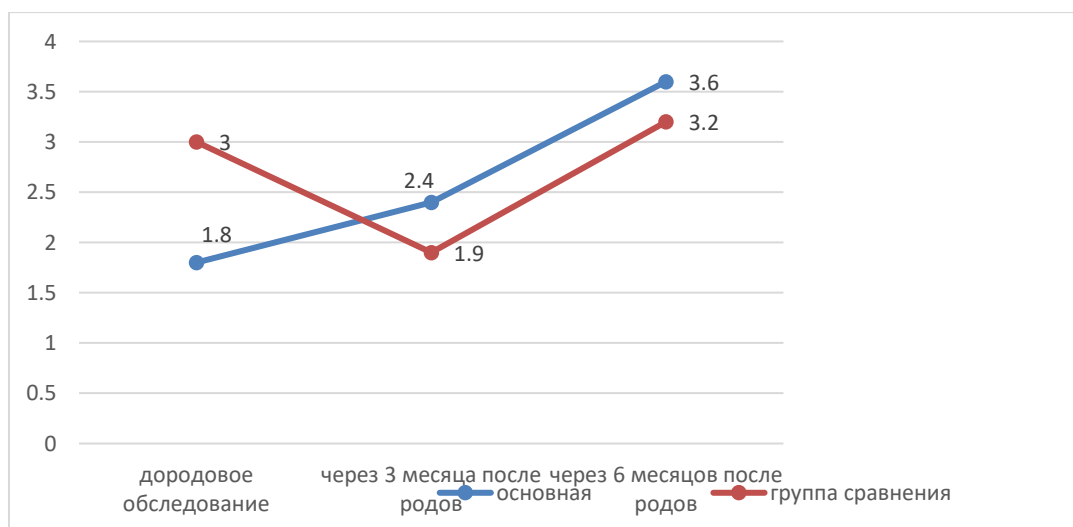


Figure 1. Ultrasound indicators for scar thickness over time

When studying the amount of type XXVI collagen over time, a sharp change was observed in both groups (Fig. 2). 3 months after birth, the amount of collagen increased from  $328.22 \pm 17.5$  ng/ml to  $363.1 \pm 48.4$  ng/ml in the main group, while in the comparison group its amount decreased by 2 times (from  $322.28 \pm 34.5$  ng/ml to  $164.12 \pm 16.25$  ng/ml). Based on the fact that this type

of collagen is specific to the genital organs, it can be concluded that in this group it was used to restore the uterus to its original state, which led to a decrease in the overall score. In the main group, the local impact of rehabilitation procedures created good conditions for regeneration, improved recovery, had a positive effect on collagen synthesis and prevented its decline.

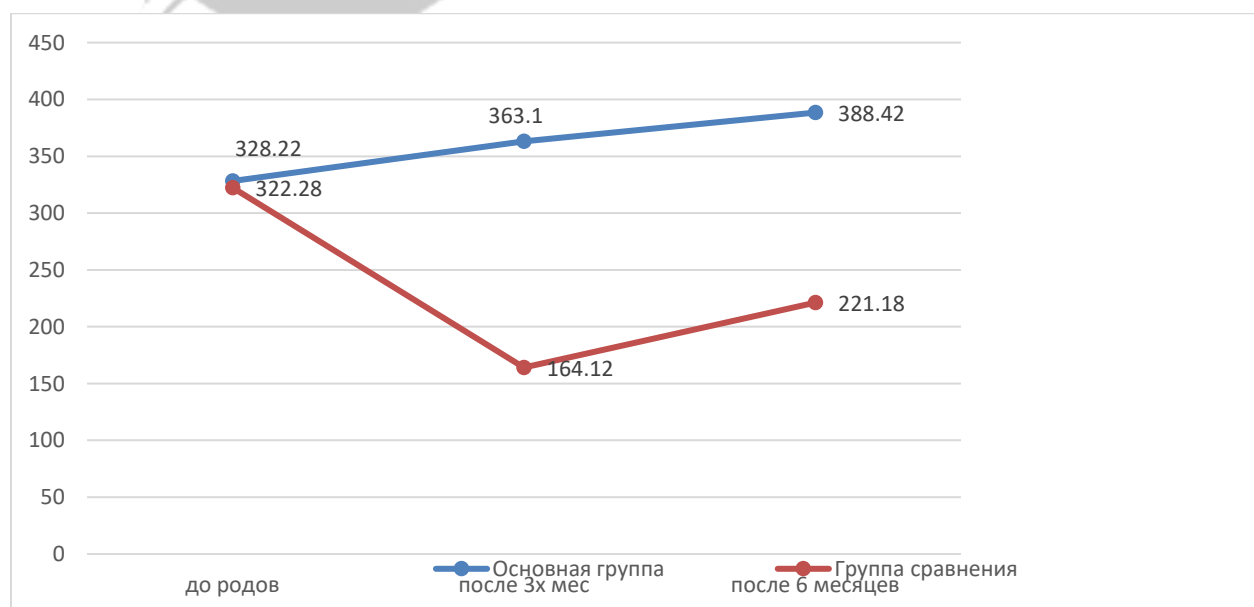


Figure 2. Indicators of the amount of type XXVI collagen over time

When assessing the results after 6 months, positive dynamics were observed in both groups, the amount of collagen in the main group was  $388.42 \pm 14.22$ , and in the comparison group -  $221.18 \pm 13.11$ . The positive dynamics in the comparison group were below the threshold values considered alternative, which in turn is a risk factor for complications in subsequent pregnancies and childbirth.

Based on ultrasound data and indicators of the amount of collagen type XXVI in dynamics, we calculated the correlation relationship and the Spearman correlation coefficient. It was found that there is a direct linear relationship between these indicators. That is, an increase in the amount of type XXVI collagen is reflected in an increase in the ultrasound data of the scar area (Fig. 3), while the Spearman correlation coefficient was  $R = 0.015$ .

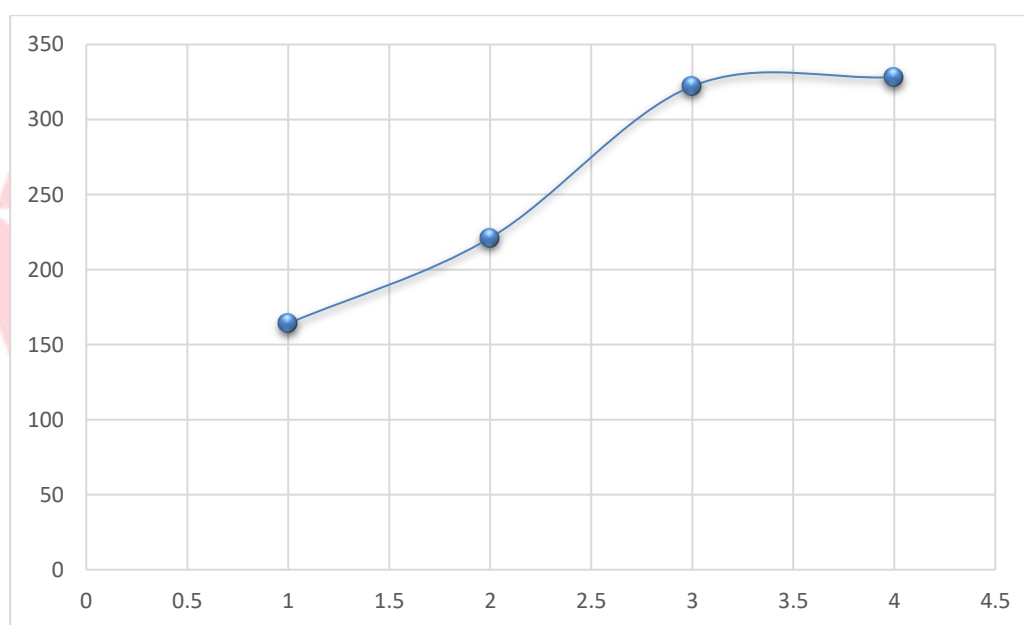


Figure 3. Correlation between collagen type XXVI parameters and ultrasound

The development and use of non-invasive methods in modern medicine is becoming relevant. At the moment, modern obstetrics is aimed at minimizing the practice of cesarean section and serves to increase the frequency of vaginal births. These studies prove the correlation between ultrasound indicators - Doppler measurements and type XXVI collagen, which leads to

a more accurate diagnosis of the condition after a surgical scar.

In the early postpartum period, the use of rehabilitation methods in women who gave birth naturally, despite CS and scar insufficiency, showed an improvement in their general condition, rapid

restoration of the genital organs after childbirth and a reduction in hospital stay.

Conclusions: In order to improve the course of subsequent pregnancies and childbirth, rehabilitation measures were carried out (magnetic therapy and ultrasound therapy), as a result of which an improvement in the general condition of women was observed, in the main group there was an increase in the amount of type XXVI collagen by 20%, according to ultrasound, there was a rapid recovery of postoperative zones twice over this period.

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