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Research Article

Peculiarities of the Practical Implementation of Rehabilitation Treatment after a Caesarean Section

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Abstract:

The article presents the materials of a study devoted to the peculiarities of the use of methods and means of physical rehabilitation in women who have undergone a corporate cesarean section. The stage of rehabilitation treatment in an obstetric hospital and a women's clinic is presented and substantiated. The criteria for initiating the use of active physical activity after surgery are specified. The volume of rehabilitation measures in the late postoperative period, which can be carried out both in the outpatient and at home conditions, is presented.

Key words: cesarean section; women in labor/puerperal; therapeutic physical education; physical activity; exercise; physical rehabilitation

Abbreviations:

- (CS) : Cesarean Section
- (SoA) : Scale of Assessment
- (TFT) : Ultrasound Examination (USE)
- (OMC) : Ovarian-Menstrual Cycle

Introduction:

Twenty years ago, the frequency of cesarean section (CS) did not exceed 2% of all deliveries. In the last 15-20 years, advances in medical technology have led to a 3-5-fold increase in the frequency of abdominal delivery [3, p. 47]. According to the world literature, every fourth woman is delivered by cesarean section, and every fifth of them has postoperative period with complications (Bayev O.R., 2002; Gurtov B.L., 2004; Ordzhonikidze N.V., 2004). The frequency of cesarean section in Ukraine is constantly growing (from 9.58% in 1999 to 16.10% in 2019), which increases the risk of maternal and perinatal morbidity and mortality [5, p. 92]. Increasing the frequency of cesarean section above 15% is not recommended by the WHO, as it does not affect the reduction of perinatal morbidity and mortality among children born by cesarean section compared to that among babies born naturally [3, p. 82; 17, p. 1903]. In the light of the above, the rehabilitation of women after cesarean section is an urgent problem of modern obstetrics, which is of great social importance. The issues of staged rehabilitation measures, the content and volume of recovery after cesarean section are insufficiently covered in the scientific literature and presented only in the form of very brief recommendations and, therefore, need further study and improvement.

It is difficult to overestimate the role of cesarean section (CS) in modern obstetrics, because this method of delivery, in many cases, prevents the development of severe complications for the mother and fetus. [3, p. 81; 4, p. 47]. Even uncomplicated cesarean section limits the reproductive function of women of fertile age. In conditions of low birth rate this circumstance becomes a social problem (E.A. Chernukha 2005; V.I. Krasnopolsky et al., 2007, 2008; T.A. Gustovrova, 2007). In Ukraine, this operation is regulated by the Order of the Ministry of Health of Ukraine No. 997 of 27.12.2011 "Clinical Protocol on Obstetric Care "Cesarean section"[11].

Undoubtedly, the method of operation depends on the specific obstetric situation and the surgeon's mastery of surgical technique [3, pp. 80-85]. Currently, the most rational method of cesarean section, worldwide worldwide, the operation with an incision (access) in the lower segment of the uterus with a transverse incision (94.0-99.0%) - a low transverse incision [5, pp. 94-95]. The advantages of cutting the uterus in the lower segment with a transverse incision are less blood loss, easier suturing of the uterine wound, better healing of the abdominal wound, and faster formation and healing of the postoperative scar (suture) [5, pp. 94-95]. The options for the surgical incision during a corporate cesarean section are shown in Figure 1:

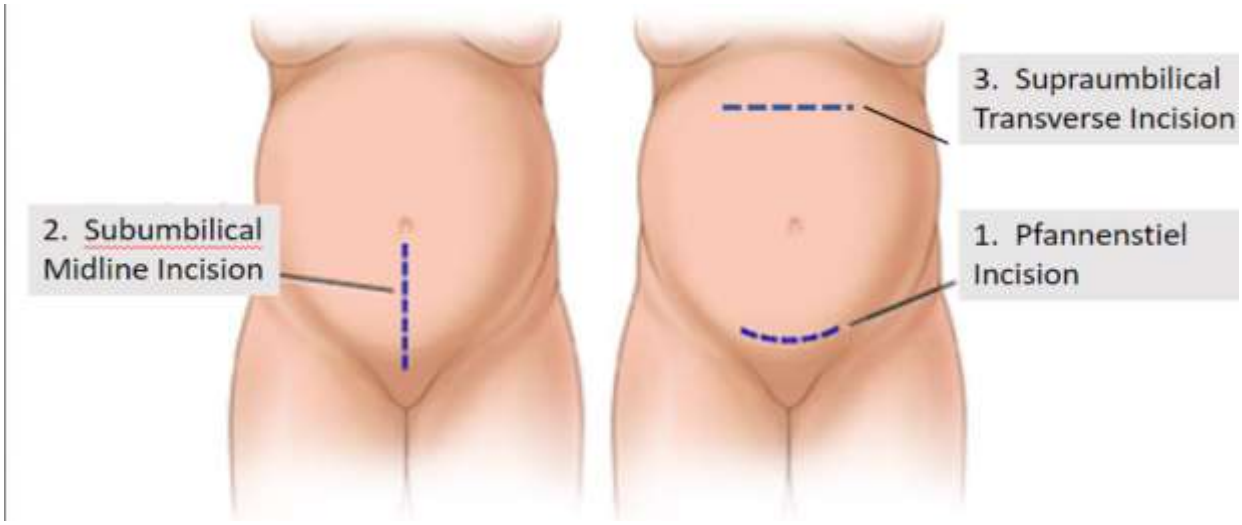

Figure 1: *Options for the incision during a corporate Caesarean section (taken from www.Obstetrical Surgical Skills)*

A clearly outlined worldwide trend toward a further increase in the frequency of cesarean section deliveries and an increasing number of various postoperative complications leads to the fact that the problems of rehabilitation and rehabilitation treatment of women after their operative delivery acquire important medical and social significance [7, pp. 3-4; 7, pp. 5; 14, pp. 394-395]. Proper management of the postoperative period is an important condition for the full recovery and rehabilitation of women after cesarean section. The postoperative period after cesarean section, at best, takes 9-10 weeks [10, p. 135; 13, p. 25].

During the operation not only, the abdominal cavity is dissected, but also the muscular wall of the uterus, and restoration of its structure and the original state is very difficult. Recovery after CS in each woman goes on an individual schedule, as much depends on the age of the woman, the conditions of the operation, as well as her baseline level of health, immunity, physical data [4, p. 48; 8, p. 40; 15, p. 395]. In the light of the above, the rehabilitation of women after CS is an urgent problem of modern obstetrics, which is of great social importance. The surgery itself should not be the final stage of maternity management.

For her complete recovery and restoration of reproductive function, further rehabilitation therapy aimed at the elimination of risk factors of any postoperative complications is necessary. The issues of practical use of staged rehabilitation measures after CP are insufficiently covered in the scientific literature, presented only as very brief recommendations, and require further study, development and improvement. The present work is an attempt to solve these problems in order to improve the level, quality and volume of medical care for women who have had a caesarean section and plan to have more children in the future.

Aim

To present one of the complex methods of non-medical physical rehabilitation of patients, after undergoing cesarean section, during the surgical delivery.

Materials and methods

When writing this article and the ongoing study, we used methods such as interview, examination, study of the necessary medical records of women in labor, protocols of cesarean section surgery in each woman who gave birth, as well as: ultrasound examination of the scar tissue after cesarean section surgery; Scale of Assessment (SoA) Therapeutic Fhysical Training (TFT); Ovarian-Menstrual Cycle (OMC), recovered after surgical deliveries. Also, the method of literary-critical analysis of available, domestic and foreign, sources of information on the issue under study was used.

Results and discussion

The study was conducted in 2021-2022. It involved 56 patients who underwent a scheduled coronary cesarean section. The mean age of the patients was 29.4±0.47 years. In 49 (87.50%), the reasons for elective coronary cesarean section surgery were various types of narrow pelvis, with significant degrees of narrowing, improper fetal position, multiple pregnancies, large fetus and clinically narrow pelvis, and placenta previa [11]. In 7 (12.50%) indications for elective caesarean section were various types of extragenital pathology, severe forms of gestosis in the second half of pregnancy, and abnormalities of labor activity. Fifteen (26.79%) patients had their first pregnancy and first delivery, 37 (66.07%) had their second delivery, and 4 (7.14%) had their third or more delivery.

The variants of surgical access and incisions during corporate cesarean section are shown in Table 1:

Indicator name	Number of women who had a cesarean section
Pfannenstiel Incision	43 (76,79%)
Sub umbilical Midline Incision	9 (16,07%)
Supraumbilical Transverse Incision	4 (7,14%)

Table 1: *The variants of surgical access and incisions during Corporate Caesarean section operations*

All performed CS operations were performed in strict compliance with the requirements of Order of the Ministry of Health of Ukraine No. 997, dated December 27, 2011, "Clinical Protocol for Obstetrical Care "Caesarean section". [11]. In patients, according to the requirements of this Cesarean section clinical protocol, the necessary number of investigations was performed, all necessary indications and contraindications were taken into account, the type of surgical delivery was determined, and the type and method of anesthesia was agreed upon

[11]. Our study and the subsequent application of methods and means of physical rehabilitation and elements of rehabilitation treatment were conducted at the maternity department and women's clinic of the communal institution "Novokakhovsky Central City Hospital", Kherson region, Ukraine. All patients who took part in the study gave their voluntary consent to participate in it.

We also obtained the consent of the management of the medical institution, the management and staff of the above structural units. When the patients were in the maternity hospital, during the preoperative period, all laboring women were explained and shown the necessary exercises that they will have to use in the early postpartum period. These materials were also printed out and handed out to women in the form of an instruction leaflet.

In addition, all the patients underwent a questionnaire, using the diagnostic technique of their self-esteem, activity and mood with the help of the Scale of Assessment (SoA), (well-being, activity, mood), which was suggested by A. Doskin (1973), and containing 30 bipolar scales [6, p. 121-125; 10, p. 135; 12, p. 36]. For all women in labor, an instructor of therapeutic physical education (TFE) conducted brief training sessions to teach them how to properly perform the necessary complex of physical exercises, to indicate the features of their performance and explain possible mistakes, and to answer the women's questions.

In the early postoperative period (after 4-6 hours), all the exercises were performed by the laboring women under the supervision of either an TFT instructor or specially trained nursing staff (midwife and/or nurse). These were mostly static and dynamic breathing and general strengthening exercises [2, p. 32-35; 13, p. 24-25]. From day 2 pelvic floor muscles exercises, body turns, alternating leg movements, bending and twisting were added. At first, women in labor did this lying down, and from day 4-5 they did it sitting up. During the last 2-3 days in the maternity hospital women performed a set of exercises recommended for exercises at home [1, p. 92; 4, p. 49-51].

After discharge from the maternity hospital, in the late postoperative period, a set of exercises for rehabilitation treatment was performed for 4-6 weeks on an outpatient basis, in the TFT office of the antenatal clinic and, if necessary, with the use of physical therapy procedures. Subsequent application of TFT, walking, special physical exercises and other means of necessary restorative treatment [1, p. 92-103; 12, p. 35-41; 14, p. 14-16]. The complex program of staged rehabilitation treatment after corporate Caesarean section included the second stage of rehabilitation impact 6-8 months after surgical delivery. It is very important to assess reparative processes in the area of the suture in order to predict the formation of the scar, to determine the timing and extent of further rehabilitation [5, p. 95; 16, pp. 456-457]. This is due to the fact that recovery of sufficient morpho functional fullness of myometrium in the scar area occurs within 1-2 years after CS surgery, and sometimes this process can take 3-4 years [14, p. 14]. This largely depends on the technique of surgical access and peculiarities of the postoperative period, the presence of complications.

he criterion for starting to increase the amount of physical activity and increase was determined after consultation and control examination by an obstetrician-gynecologist and, to a large extent, after control ultrasound examination (USE) and the condition of the postoperative uterine scar and postoperative suture [5, pp. 95-96; 14, pp. 15-16; 16, pp. 456-457]. Scar pathology cicatrices with the presence of areas of connective-tissue thickening, cysts, phenomena of myometrium inconsistency, interlayers with the phenomena of lipoid infiltration, hyalinosis and/or dystrophic changes) [14, pp. 12-16; 16, pp. 458-461]. All this, when you try to activate the motor activity and increase physical loads, can lead to an intensification of defects in the area of the postoperative scar in the uterine tissues, possible dilation, bleeding, pain and more serious complications [2, p. 34; 9, p. 27-29].

All of the above should be a criterion when deciding on the planning, carrying out, volume and intensity of physical activity and the individual spectrum of supposed exercises in the rehabilitation of this group of patients, their work and sports activities. The processes and rates of uterine involution and USE, taking into account the lochial secretion and recovery of the patients', intercourse, and postpartum contraception were also assessed using data from the gynecological control examination and ultrasound [7, p. 18-21; 8, p. 41; 14, p. 31-34].

The scoring of the patients' scores on the So A indicators (self-perception, activity, mood) showed that the psychological state of the female rehabilitators, to whom the complex method of rehabilitation activities was applied, was positive, clearly and effectively contributed to their faster recovery [6, p. 122; 10, p. 135-137]. In the study group, taking into account the individual condition of the patients (according to the gynecological control examination) and ultrasound findings, taking into account the existing contraindications, presence or absence of lactation, the patients underwent outpatient rehabilitation in the physical therapy rooms (TFT) of the antenatal clinic in the period from 6 to 8 months after surgical delivery. The complex of rehabilitation methods and tools included exercises to strengthen the abdominal, lumbosacral, buttocks, hips, and pelvic floor muscles. The exercises were performed in the first half of the day, 2 to 3 times a week, with sessions lasting up to 1 hour.

Also, in the course of the classes, individually selected fitness balls and exercise bicycles were used in addition. Back, lumbosacral, buttocks and hips were massaged every other day for 10-15 sessions. The duration of this stage ranged from 1 month (in patients with a low transverse incision), to 1.5-2 months in patients with a low classic incision, and up to 2.5 months in patients with a more extensive and traumatic classic incision during cesarean section surgery. At the same time, rehabilitated women were offered the opportunity to conduct independent exercises at home, using a set of special Kegel exercises to strengthen the perineum and pelvic floor muscles, exercises on the fit ball, TFT with a set of exercises for the abdominal and lumbosacral muscles.

Part of the patients, 21 (37.50%) underwent an additional stage of postoperative rehabilitation in a specialized sanatorium for the treatment of obstetric and gynecological pathology, with the use of swimming, lessons in the pool using active physical exercises through aqua-aerobics, use of physical therapy, phytotherapy and aromatherapy.

The control examination of the women carried out after 9-12 months and parallel assessment of psychological parameters (SoA) showed not only their good well-being, physical and psychological activity and adequate mood, but also consistency of the postoperative suture, absence of complications, including adhesions, restoration of menstrual cycle and hollow life in all the patients. This gives us an opportunity to talk about the adaptability and practical suitability of the proposed staged complex of methods and means of physical rehabilitation and a number of additional non-medicinal methods as a program of rehabilitation treatment in women who have undergone a planned corporate cesarean section.

Conclusion

- Maternity patients who have undergone cesarean section surgery should undergo staged individual rehabilitation, both in the early and late postoperative periods.
- The beginning of intensive physical activity in the late postoperative period should be coordinated with the doctor supervising the patient, taking into account all the absolute and relative contraindications.

- Determination of the postoperative scar condition and the type of incision used for the CS operation are the main factors determining the individual scope and duration of rehabilitation.

Conflict of interest: The author notes the complete absence of any conflicts of interest.

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