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ОПЫТ ИСПОЛЬЗОВАНИЯ ТАР-БЛОКА В ПОСЛЕОПЕРАЦИОННОМ ПЕРИОДЕ КЕСАРЕВА СЕЧЕНИЯ

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TAP BLOCK IN THE POSTOPERATIVE PERIOD OF CESAREAN SECTION (USAGE EXPERIENCE)

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Резюме. Базовым компонентом концепции «Fast Track Surgery» является качественное обезболивание в раннем послеоперационном периоде после любой хирургической операции, в том числе и кесарево сечение. Было проведено проспективное рандомизированное контролируемое исследование в которое включено было 40 беременных женщин родоразрешенных путем кесарева сечения в условиях многокомпонентной анестезии. Мультимодальное обезболивание послеоперационного периода после кесарева сечения с использованием ТАБ-блока способствует стабильное течение счет гемодинамики, уменьшение потребности в наркотических и/или нестероидных противоспалительных препаратов, а также ранней активизации пациенток.

Ключевые слова: кесарево сечение, послеоперационный период, ТАР-блок.

Resume. The basic component of the "Fast Track Surgery" concept is high-quality anesthesia in the early postoperative period after any surgical operation, including cesarean section. A prospective randomized controlled trial was conducted, which included 40 pregnant women delivered by cesarean section under multicomponent anesthesia. Multimodal anesthesia of the postoperative period after cesarean section using a TAB block promotes a stable course due to hemodynamics, reducing the need for narcotic and/or nonsteroidal anti-inflammatory drugs, as well as early activation of patients.

Keywords: cesarean section, postoperative period, TAB block.

Relevance. The basic component of the "Fast Track Surgery" concept is high-quality anesthesia in the early postoperative period after any surgical operation, including cesarean section.

The basis of adequate analgesia is the principle of multimodality, which ensures the effect on all components of the nociceptive impulse, which is achieved by using a combination of various methods of regional anesthesia and (or) prescribing narcotic analgesics, nonsteroidal anti-inflammatory drugs (NSAIDs) and paracetamol [1,2].

Pain syndrome after cesarean section has two components – somatic and visceral.Spinal anesthesia is most often used to relieve pain during cesarean section, but there are situations in which multicomponent anesthesia with artificial ventilation is used. After this type of anesthesia in the early postoperative period, a combination of nonsteroidal anti-inflammatory drugs (paracetamol, dexketoprofen) with narcotic analgesics is most often used for the purpose of analgesia [2].

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TAB-block (Transversus Abdominal Plane Block, TAB-block) is a method of regional anesthesia that allows to suppress the afferent nociceptive flow from the anterior abdominal wall [3,4].

Aim: to determine the effectiveness and safety of using the TAB block in patients delivered by cesarean section.

Objectives: the object of the study was hemodynamic parameters (systolic, diastolic, mean blood pressure, heart rate), glycemic level, satisfaction with anesthesia (visual-analog scale).

Material and methods. The study design is a prospective randomized controlled trial. The study involved 40 women with full-term pregnancy who were delivered by cesarean section under multicomponent balanced anesthesia (MCA) with artificial lung ventilation at the 6th Minsk City Clinical Hospital from January 1, 2024 to December 1, 2024.

All patients were divided into two groups: group A, which included 20 pregnant women delivered by cesarean section under conditions of multicomponent anesthesia with mechanical ventilation, who received pain relief in the postoperative period with narcotic analgesics and nonsteroidal anti-inflammatory drugs.

The inclusion criteria were the voluntary consent of the patients to participate in the study, ASA 2 (according to the classification of physical condition). Surgical intervention-laparotomy according to Joel Cohen, caesarean section in the lower segment with a cross-section.

Exclusion criteria: refusal of the patient to participate in the study, psychiatric diseases (psychosis, schizophrenia, manic-depressive syndrome, etc.), diseases of the central and peripheral nervous system, coagulation disorders (thrombocytopenia less than 100*1012 / l, hypocoagulation), sepsis.

Indications for cesarean section under MCA with mechanical ventilation were: prolapse of umbilical cord loops, acute fetal hypoxia, refusal of the patient to undergo regional anesthesia, scoliosis of the spine, scar on the uterus.

Stages of research:Stage 1 - after surgery (in the postoperative ward), stage 2 - 3 hours after surgery, stage 3 - 6 hours after surgery, stage 4- 9 hours after surgery, stage 5 - 12 hours after surgery, stage 6 - 24 hours after surgery.

The patients were randomized according to the main demographic indicators. (age, gender, underlying/concomitant pathology), $p>0.05$, using a simple randomized method based on computer generation of randomized numbers.

The data obtained were processed by methods of variational statistics on a personal computer using the STATISTICA v application software package. 10.0. To compare parametric (quantitatively normally distributed features) in the observation groups, the Student's t-test was used; when comparing nonparametric indicators, the Kruskal–Wallis criterion was used.

Results and their discussion. The average age in group A was 29.5±4.3 years, and in group B 29.1±2.9 years. The duration of anesthesia during cesarean section averaged 23 minutes ($p\geq0.05$), Table 1.

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Tbl. 1. Distribution of patients by age, body weight, height and duration of surgery

Parameters, M±SD	group -A (n=20)	group -B (n=20)	p*
Age, years	30,6±5,6	29,1±4,9	0,46
Weight, kg	77,30±8,1	75,6±8,2	0,69
Height, cm	166,09±6,47	164,62±6,16	0,24
Duration of the operation, min	33,6±13,5	31,9±12,6	0,66

*p ≤0,05, significant difference between groups A and B

The technique of performing MSA with a ventilator: after filling the respiratory circuit with an anesthetic, induction was performed by inhalation of sevoflurane through the face mask of an anesthetic device at a concentration of 6-8 volume percent (vol%) before apnea (for 35-50 seconds) in a stream of fresh gas (SFG) 6-8 l/min with Fi02 = 100%, in combination with intravenous administration sodium thiopental in a dose of 1.5-3 mg/kg; rapid sequential induction was performed.

Muscle relaxation was provided by the administration of succinylcholine at a dose of 1-1.5 mg/kg, followed by orotracheal intubation and transfer to a ventilator in the normal ventilation mode with ventilation parameters: respiratory volume (Vt) = 6-8 ml/kg, respiratory rate (Ft) = 10-14 breaths/min (carbon dioxide concentration on exhalation, PetC02= 32 - 34 mmHg), the ratio of inhalation time to exhalation time (I:F) - 1:2, Fi02 = 0.3 - 0.4. After tracheal intubation, the flow of fresh gas (02) was 4 l/min, after the extraction of the child, the flow of fresh gas decreases to 2 l/min and remains so until the end of the operation.

Anesthesia was maintained before/after fetal extraction by inhalation of sevoflurane 1.5-2 vol%+ 02.2 l/min (0.5-1.0 total MAC (minimum alveolar concentration).

After fetal extraction, intravenous administration of fentanyl at a dose of 1-3 micrograms/ kg/hour was used and a depolarizing muscle relaxant (succinylcholine at a dose of ½ of the initial dose after 5-10 minutes) was used to ensure myoplegia; if necessary, prolonged muscle relaxation intravenously - atracurium bezilate 0.3-0.4 mg/kg every 30 minutes or rocuronium bromide 0.15 mg/kg every 30-60 min or cisatracurium bezilate 0.03 mg/kg every 15-20 minutes or titration 1-2 mcg/kg/min.

When suturing subcutaneous fat, stop supplying sevoflurane and switch to 100% oxygen. Blood loss in both group A and group B was 10 ml/kg (p>0.05).

Infusion in the postoperative period was represented by glucose-saline solutions from the calculation of maintenance fluid and fluid of current pathological losses and averaged 37.2±15.5 ml/kg/day in group A, in group B – 42.1±9.7 ml/kg/day , p>0.05.

The TAB block was performed with a 26-27G "Pencil Point" type spinal needle with lateral access controlled by an ultrasound sensor: the sensor was located at the level of the anterior or middle axillary lines, approximately in the middle of the distance between the lower edge of the 12th rib and the crest of the ilium, while the nerves Th10-12 were blocked. The blockade was carried out on both sides. A combination of hypertonic bupivocaine solution bupivocaine 0.5%-10ml in combination with dexamethasone 4mg was used for the blockade.

Hemodynamics in both groups did not significantly differ in the postoperative period, p≥0.05. There were no episodes of respiratory depression in both groups B, Table 2.

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Tbl. 2. Hemodynamic parameters

Stages	HR/min		SBP, mm.Hg		DBP, mm.Hg		Mean Bp, mm.Hg	
	A,n=20	B, n=20	A,n=20	B, n=20	A,n=20	B, n=20	A,n=20	B, n=20
After the operation	99,3± 15,64	100,1± 10,72	127,4± 10,81*	123,8± 17,41	87,8± 15,11	83,7± 11,08	105,64± 8,25	96,75±9,85
1 hour after surgery	97,6± 16,23	91,4± 12,61	126,3± 11,15	123,5± 16,61*	86,0± 12,59	81,8± 9,28*	99,04± 10,25	94,58± 8,62*
3 hour after surgery	83,6± 13,06¤	82,3± 11,05*	130,1± 11,55	120,4± 13,61*	83,2± 15,02	78,2± 9,42*	97,14± 12,18*	92,32± 10,72*
6 hour after surgery	76,2± 12,51¤	80,9± 9,85*	134,6± 11,56	119,3± 13,04*	80,2± 11,16	76,2± 10,66*	96,22± 9,16	90,27± 10,69*

*p ≤0,05, significant difference between groups A and B

The pain level according to VAS was significantly lower in group B compared to Group A after 1 hour and remained so during the first day after surgery, p<0.05, Table 3.

Tbl. 3. Dynamics of pain level according to VAS in the early postoperative period (VAS)

Stages	VAS , (n=40)	
	A, (n=20)	B, (n=20)
After the operation	5,2(5,1-7,3)	5,0(5,0-6,9)
1 hour after surgery	4,3(4,2-5,4)	2,5(2,4-2,8)*
3 hour after surgery	3,6(3,5-3,8)	1,9(1,9-2,0)*
6 hour after surgery	2,7 (2,6-2,9)	1,4(1,3-1,6)*
12 hour after surgery	2,3(2,2-2,5)	1,1(1,1-1,2)*
24 hour after surgery	2,4(2,2-2,6)	1,0(1,0-1,1)*

*p ≤0,05, significant difference between groups A and B

The frequency and dose of use of narcotic analgesics and nonsteroidal anti-inflammatory drugs in combination with gabopentin in the postoperative period was significantly lower in group B with the use of a TAB block, p<0.05.

The use of abdominal wall blockade (group B) provided a VAS score of less than 2 points and allowed patients to be activated 4-6 hours after surgery, p<0.05

Conclusion:

1. Multimodal anesthesia of the postoperative period after cesarean section using a TAB block ensures a stable course of the postoperative period due to the hemodynamic response, patient satisfaction, and reduced need for narcotic and/or nonsteroidal anti-inflammatory drugs.

2. Multimodal anesthesia using the TAB block promotes early activation of patients after cesarean section (4-6 hours after surgery).

3. The use of a combination of hyperbaric bupivocaine solution 0.5%-10ml in combination with dexamethasone 4mg with a TAB block ensures a stable course of the

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postoperative period after cesarean section by reducing the need for narcotic and/ or nonsteroidal anti-inflammatory analgesics.

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