Родители учеников начальной школы предпочитают очное обучение (83%), в связи с привычной организацией учебного процесса.

На выбор off-laine обучения у старшеклассников повлиял негативный опыт частых ОРВИ в период до пандемии.

Парадоксальным оказалось, что сонливость почти в половине случаев преобладала у детей, родители которых приветствовали дистанционное обучение, по сравнению с ответами родителей - сторонниками очного обучения 19,2 % (с достоверной разницей $p \leq 0,05$).

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EFFICIENCY OF ANESTHETIC SUPPORT FOR PREMATURE CHILDBIRTH WITH DIFFERENT OPTIONS

Fomichev V.A.
Novosibirsk State Medical University, Russia, Novosibirsk
Oktyabrskaya E.V.
Novosibirsk State Medical University, Russia, Novosibirsk
Mezueva A.S.
Novosibirck State Medikal University, Russia, Novosibirck

АНЕСТЕЗИОЛОГИЧЕСКАЯ ЗАЩИТА ПРЕЖДЕВРЕМЕННЫХ РОДОВ ПРИ РАЗЛИЧНЫХ ВАРИАНТАХ АНЕСТЕЗИИ

Фомичев В.А.
Новосибирский Государственный медуниверситет, Россия, Новосибирск
Октябрьская Е.В.
Новосибирский Государственный медуниверситет, Россия, Новосибирск
Межуева А.С.
Новосибирский Государственный медуниверситет, Россия, Новосибирск

ANNOTATION

On the basis of a random sample, 150 women in labor with spontaneous premature birth were selected into three clinical groups, comparable according to the ASA, the Fisher scale, and a number of anthropometric parameters. In the main group (n = 69), single-stage sacral anesthesia with 0.2% bupivacaine solution was used, in the 1st comparison group (n = 49), prolonged epidural anesthesia with 0.125% bupivacaine solution was performed, and in the 2nd comparison group (n = 32), labor was performed with using pudenda1 anesthesia and

subcutaneous injection of 2% promedol. In these groups, the content of cortisol and glucose in the blood was assessed; the assessment of pain syndrome, motor and sensory block was carried out. It was revealed that the proposed variant of sacral anesthesia provides the same protection as epidural anesthesia, but with a significant decrease in the level of motor block.м

АННОТАЦИЯ

На основе случайной выборки в три клинических группы отобраны 150 рожениц с самопроизвольными преждевременными родами, сопоставимые по ASA, шкале Fisheги ряду антропометрических параметров. В основной группе (п=69) применялась одномоментная сакральная анестезия 0,2% раствором бупивакаина, в 1 группе сравнения (п=49) проводилась продленная эпидуральная анестезия 0,125% раствором бупивакаина, а во 2 группе сравнения (n=32) роды велись с использованием пудендальной анестезии и подкожной иньекции 2% промедола. В этих группах оценено содержание кортизола и глюкозы в крови; проведена оценка болевого синдрома, моторного и сенсорного блока. Выявлено, что предложенный вариант сакральной анестезии, обеспечивает такую же защиту, как и эпидуральная анестезия, но с достоверным снижением уровня моторного блока.

Key words: preterm labor, regional anesthesia, cortisol and blood glucose, motor and sensory blockade.

Ключевые слова: преждевременные роды, региональная анестезия, кортизол и глюкоза крови, моторная и сенсорная блокада.

Insufficient inclusion of compensatory reactions at the onset of labor and numerous risk factors (1, 4) that cause stress in the body functions of a woman in labor are the rationale for adequate anesthetic management to protect the woman in labor and the fetus (2, 3).

Research task. To study the clinical and laboratory efficacy of anesthetic protection of preterm labor using various anesthesia options: sacral anesthesia, prolonged epidural blockade by lumbar access, and pudendal anesthesia.

Material and method

150 women in labor were selected into three clinical groups on the basis of a random sample in accordance with the following criteria: 1) gestational age 28-36 weeks; 2) spontaneous onset of premature birth; 3) risk class in accordance with the ASA 1-2 scale, Fisher fetal state assessment of at least 6 points.

Depending on the type of anesthesia, the following groups were identified: the main group (n = 69) in which one-stage sacral anesthesia was performed with 0.2% bupivacaine solution, 1 comparison group (n = 49), where prolonged epidural anesthesia was performed with 0.125% bupivacaine solution; 2 comparison group in which childbirth was carried out using parenteral administration of 2% promedol and pudendal anesthesia (n = 32). The groups were matched for age, height, body weight, gestational age, and ASA physical status.

The study did not include women in labor whose condition was decompensated during pregnancy and somatic pathology with a risk class of ASA 3 and higher, as well as in the presence of severe intrauterine fetal hypoxia with a Fisher score of less than 6 points, as this could affect the study results.

The assessment of clinical data was carried out at the following stages of the study: stage 1 - before the onset of anesthesia, stage 2 - 40 minutes after the injection of anesthetic, stage 3 - the end of the first stage of labor.

The assessment of pain intensity was carried out using a visual analogue scale (VAS). The severity of the motor block was assessed using the Bromage scale. The level of sensory blockade was assessed on the basis of "pin prick".

In order to assess the response of the mother's body to pain, stress response and the adequacy of analgesia in the clinical groups of parturient women, the content of cortisol and blood glucose was determined. The level of cotizol was determined by the enzyme-linked immunosorbent assay using the Bio-tek instruments inc., Elx. 800 (USA). The glucose content was determined in capillary whole blood by the glucose oxidant method using an optical photometer 50-10 (Russia). In addition, to assess the severity of metabolic acidosis due to activation of the processes of glycolysis and glycogenolysisdetermined the total activity of lactate dehydrogenase (LDH), without isolating isoenzymes. For this purpose, an optical test was used for the conversion of pyruvate to lactate at a temperature of 37 degrees Celsius. The studies were carried out on a biochemical analyzer "CobasEmira" (Switzerland). Laboratory studies were carried out in 15 women in labor in each clinical group.

Results

The indices of subjective pain assessment according to VAS, motor and sensory blockade in the studied groups of parturient women are presented in Table 1.

When analyzing the subjective pain assessment according to VAS at the 2nd stage of the study, in all clinical groups there was a decrease in the assessment value by 39.7%, 39.9% and 34.8%, respectively, while there were no significant differences between the clinical groups. At the 3rd stage of the study, the highest intensity of pain syndrome was noted in the 2nd comparison group, in the main group of women in labor, the VAS score was lower by 28.42% ($p < 0.05$), and in the 1st comparison group by 35.8% ($p < 0,05$) than in the 2nd group. At the same time, there were no significant differences in pain assessment by VAS between the main and 1 comparison group.

Table 1

Assessment of pain syndrome, motor and sensory blockade in the studied groups of women in labor

	1 stage	2 stage	3 stage
	Main	group	
Pain score according to VAS (points)	7,53±0,08	4,54±0,07*	6,17±0,08*
Motorblockassessment (points)	-	0,71±0,07	0,38±0,06*
Sensoryblockscore (points)	-	1,59±0,06	1,47±0,07*
1	group	comparing	
Pain score according to VAS (points)	7,84±0,09	4,71±0,1	5,53±0,09*
Motorblockassessment (points)	-	0,65±0,09	0,89±0,08
Sensoryblockscore (points)	-	1,67±0,07	1,87±0,07
2	group	comparing	
Pain score according to VAS (points)	7,85±0,12	5,1±0,1*	8,62±0,08*
Motorblockassessment (points)	-	-	no
Sensoryblockscore (points)	-	-	0,22±0,1

*p<0,05 – reliable difference from the original data

When comparing the severity of the motor block at the stages of the study of clinical groups of parturient women, it was found that in the main group and in the 1st comparison group at the 2nd stage of the study, the level of the motor block did not differ significantly. In women in labor in the main group at the beginning of the second stage of labor, at the 3rd stage of the study, the level of motor block was 42.7% lower (p <0.05) than in the 1st comparison group. In women in labor in the 2nd comparison group, motor blockade was not observed.

We found that in the main group and in the 1st comparison group at the 2nd stage of the study, after the implementation of the effect of regional anesthesia, the level of sensory blockade did not differ significantly. At stage 3, in the main group, a decrease in the severity of sensory blockade by 7.04% (p <0.05) was noted, in the 1st comparison group, the severity of sensory blockade increased by 10.69% (p <0.05), which was due to a large total dose local anesthetic. In the 2nd comparison group, after performing pudendal anesthesia, the level of the sensory block at the 3rd stage of the study was lower than in the main group by 84.5% (p <0.05) and by 87.13% (p <0.05) lower than in 1 comparison group.

We investigated biochemical parameters reflecting the level of stress in clinical groups of parturient women at the stages of pain relief. The results are shown in Table 2.

Table 2

Biochemical parameters reflecting the stress level in women in labor in clinical groups at the stages of labor pain relief

Biochemicalparameters	Stages	Groups	womenin	labor
		Main	1 comparing	2 comparing
Cortisol	1 stage	1578,3±74,1	1591,1±67,1	1740,0±60,8
(nmol / l)	2 stage	811,4±48,8	643,1±26,7*#	1951,0±52,1*#
	3 stage	1090,1±21,3	954,2±32,1*#	2949,1±210,6*#
Lactat-	1 stage	419,6±10,8	440,9±9,7	438,6±10,67
dehydrogenase	2 stage	313,5±8,4#	335,4±8,3#	508,9±12,82*#
(ME/L)	3 stage	356,2±7,6#	375,4±6,7#	654,4±12,3*#
Glucose	1 stage	5,88±0,1	6,10±0,1	6,15±0,16
(mmol/l)	2 stage	4,28±0,06#	4,31±0,07*	6,38±0,16*
	3 stage	4,45±0,1	3,09±0,06*#	6,73±0,13*

*- significant difference from the main group (p<0,05)

#-reliable difference from the previous stage (p<0,05)

The results of the study show that there were no significant differences between the baseline indicators reflecting the level of cortisol (p <0.05). In the main group of women in labor, at the 2nd stage of the study, there was a significant decrease in the level of cortisol by 48.6% (p <0.05), at the 3rd stage, there was a slight increase in the level of cortisol by 34.35% (p <0.07), withthis remained a significant difference with the initial indicator (30.9%, p <0.05). In women in labor in the 1st comparison group, cortisol indicators decreased at the 2nd stage of the study by 59.6%. At stage 3, there was a slight increase in the level of cortisol in parturient women by 48.4% (p <0.05), while there was also a significant difference with the initial indicator (p <0.05). In the 2nd comparison group, at the stages of the study, there was an increase in the level of cortisol in women in labor, which by the end of the 1st stage of labor increased by 62.9% from the initial value (p <0.05).

In the main group of women in labor at the 2nd stage of the study, there was a significant decrease in the level of LDH activity by 25.3% (p <0.05), at the 3rd stage there was a slight increase in LDH activity by 13.6% (p <0.05), while significant difference with the initial indicator (15.9%). In women in labor of the 1st comparison group, the indicators of LDH activity

decreased at the 2nd stage of the study by 23.9% (p <0.05), at the 3rd stage there was a slight increase in the level of LDH activity by 11.9% (p <0.05), while there was also a significant difference with the initial indicator (14.8%, p <0.05). In comparison group 2, an increase in LDH activity was noted by 16.0 and 28.6%, respectively. When analyzing the dynamics of LDH activity in the 2nd comparison group, a significant increase in the level of LDH activity by 49.2% from the initial value (p <0.05) by the end of the 1st stage of labor draws attention.

At the 2nd stage of the study, the LDH activity in the main group and the 1st comparison group was lower than in the 2nd comparison group by 38.4 and 34.1%, respectively. At stage 3, this difference increased and amounted to 45.6 and 42.6% (p <0.05).

In women in labor of the main group, the blood glucose (BG) level decreased at the 2nd stage of the study in comparison with the initial data by 27.2% (p <0.05), at the 2nd stage there was a slight increase in the blood glucose level by 4.0% (p <0 , 05), while maintaining a significant difference with the initial blood glucose level. In women in labor of the 1st comparison group, BG indicators decreased at the examination stages by 29.9% and 28.3%, respectively (p <0.05). In the second group of comparison, at the stages of the study, there was a slight increase in blood glucose by 4.6 and 5.2%, respectively. When analyzing the dynamics of blood glucose in the 2nd comparison group, a significant increase in the blood glucose content (p <0.05) by the end of the 1st stage of labor (by 10.3% of the initial values) attracts attention. The most significant decrease in blood glucose levels occurred in the 1st comparison group (by 49.7% from the initial). The average values of blood glucose indicators by the end of the 1st stage of labor in women in labor in the main group were lower by 51.2% (p <0.05) than in the 2nd comparison group and by 30.6% (p <0.05) higher, than in the 1st comparison group.

The dynamics of biochemical markers of stress demonstrated the effectiveness of stress protection in pain relief of preterm labor using regional methods of anesthesia and its absence when using narcotic analgesics in combination with pudendal anesthesia.

Evaluating the effectiveness of pain relief in clinical groups in women in labor, we can conclude that the most effective pain relief was in the 1st comparison group, however, it was accompanied by the most pronounced motor blockade. In the main group, the effectiveness of pain relief at stage 2 was comparable to the group where prolonged epidural anesthesia was administered.At stage 3, the effectiveness of pain relief decreased, remaining at a sufficient level, while the level of motor blockade decreased to a greater extent than the level of sensory blockade. In the 2nd comparison group, the period of sufficient anesthesia was short; the severity of pain at stage 3 was higher than at stage 1 of the study.

Findings

1. The variant of sacral anesthesia using a 0.2% bupivacaine solution allows to realize adequate and clinically significant protective effects in the anesthetic management of preterm labor, comparable to the effectiveness of prolonged epidural anesthesia. The advantage of sacral anesthesia is that while maintaining the level of the sensory block, there was a significant decrease in the level of the motor block.

2. When pudendal anesthesia and narcotic analgesic were used for anesthesia of preterm labor, the period of sufficient anesthesia was short and the severity of pain at stage 3 was higher than at stage 1 of the study.

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