International Journal of
Health Systems and Medical Science

ISSN: 2833-7433
Volume 1 | No 5 | Nov-2022

Anesthesiological Protection of Newborn in Abdominal Delivery of Women with Severe Mitral Stenose

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Abstract: Results of 38 preterm infants (19 patients in each group) are presented; their state was comparatively assessed in newborns delivered by CoC from mothers with severe MI against the background of the traditional OMA with AVL and the combined general anesthesia based on EB with a reduced concentration of local anesthetics. It was found out that OMA with IVL against the background of epidural block has less pronounced adverse effect on the newborn as compared to OMA with IVL; it allows to preserve adaptive capacity of the child during early adaptation to extrauterine conditions in a greater degree despite the extremely unfavorable initial background (prematurity; a significant decrease of coronary reserves in the mother due to severe MI (1,9-1,1 cm2).

Keywords: condition, of newborns caesarean section severe mitral stenosis general anesthesia.

Introduction. The problem of delivery of pregnant women with mitral heart disease, operative delivery with minimal risk predictors for the mother and child remains relevant up to the present time. Central neuroaxial block (CNB) is the universally recognised 'gold standard' of anaesthesia for caesarean section (CS), spinal and epidural anaesthesia are theoretically available; any variant of spinal-epidural block as applied to obstetric tactics is absolutely safe. [2,3,10]. At the same time CNB is unacceptable in patients with circulatory insufficiency (SC) and low coronary reserves, due to the real possibility of hemodynamic instability of both mother and newborn, especially concerning pregnant women with "pronounced" atrioventricular stenosis (1, 9-1.1cm2), with a maximum delivery time of 32-34 weeks due to progressive cardiac insufficiency [6,8,], and the best method of anaesthesia is a variant of general multicomponent anaesthesia (GMA) with a ventilator [9]. Combined anaesthesia (CA) based on epidural blockade (EB) with reduced concentrations of local anaesthetics is an acceptable method, minimising the consumption of narcotic drugs and muscle relaxants and hence significantly reducing their depressive effects on the neonate.

Purpose of the study: Comparative assessment of neonates delivered by caesarean section in mothers with severe MI against the background of traditional OMA and combined EB anaesthesia with reduced concentrations of local anaesthetics.

Material and methods. For a comparative analysis of the early adaptive period we analyzed 38 charts of newborns delivered by coagulation from a mother with severe MI (1.9-1.1 cm2). Depending on the anesthesia method used we divided all neonates into 2 groups. The 1st group included 19 infants delivered under combined anesthesia (CA) against the background of an epidural block with reduced concentrations of local anesthetics and the 2nd group included a similar number

of infants delivered under IMA with AVR. 38 anesthesiology charts and labor histories completed by birthing at the maternity complex of the Samarkand Medical University Multiprofile Hospital. (Samarkand city). Both maternal groups were identical in terms of gestational age (33-35 weeks), nature of surgical intervention, degree of MS (1.9-1.1 cm2), physical status of the women in labor, frequency and severity of extragenital diseases, and baseline uteroplacental-fetal blood flow. The condition of neonates at birth was assessed using the Apgar Scale at 1 and 5 minutes of life[12], the NACS scale [3] and the V.A. Bushtyrev Scale at 1 hour and 24 hours after birth[3]. The course of early postnatal adaptation of newborns was assessed by mathematical analysis of heart rate using cardiointervalography, with the stress index (SI) calculated at 5 min and 24 h after birth [1,11], the concentration of total cortisol (TC) was determined in umbilical cord blood using immunochemiluminescent assay (ICLA) (MAGLUMI-600 Shibe CoL-TD China analyzer) at 5 min after birth. The efficiency of independent respiration was judged by the oxygen saturation - SpO2 (Triton-Russia monitor), 2 and 24 hours after birth. Statistical processing of the results was carried out by the method of variance statistics with the definition of Student's t-test of differences using Microsoft Excel.

Results and discussion. As can be seen from the table, all newborns had a birth weight of less than 2000g, which was consistent with the gestational age at delivery and the criteria for prematurity. The Apgar score at the first minute was 5.9 ± 0.4 in Group 1 and 5.4 ± 0.1 in Group 2. Five minutes after birth, the mean Apgar scores increased significantly in both study groups, being 7.2 ± 0.2 and 6.7 ± 2 points, respectively. Of note was a significantly higher score in the group of children extracted under CA with AV (table). Analysing the neuropsychological adaptation of the newborns using the NACS scale 2 hours after birth, the best results were registered in Group 1, where the mean score was 30.2 ± 0.3, while in Group 2, where the babies were delivered under the condition of CA on the epidural block, the difference was statistically significant, was only 28.6 ± 0.2 points. After 24 hours, the absolute mean scores increased significantly in both studied groups, relative to the preceding study phase. No significant intergroup differences were observed**.**

Some indicators characterising the condition of newborns in the early adaptation period (M±m)

Indicators to be studied	Method of anaesthesia	
	OCA with Artificial Lung Ventilation	OMA with Artificial Lung Ventilation
Gestational age, weeks	33,2 ± 0,4	33,4 ± 0,6
Birth weight, grams	1905,6 ± 30,6	1894,8 ± 32,8
Apgar scores (points)	5,9 ± 0,1 * 7,2 ± 0,2 *	5,4 ± 0,1 * 6,7 ± 0,2 * Δ
1 minute	 30,20 ± 0,3 * 35,7 ± 0,5 Δ	 28,6 ± 0,2 * 35,4 ± 0,3Δ
After 5 minutes	1432,6 ± 50,4 * 730,8 ± 22,8 Δ	1935,6 ± 80,4 * 796,8 ± 20,2 Δ
NACS scores (points)	591,8 ± 35,6 *	338,6 ± 22,4 *
2 hours after birth	92,9 ± 0,1 * 96,3 ± 0,2 Δ	91,2 ± 0,1 * 96,4 ± 0,3 Δ

Note: Δ - statistically significant differences (p<0.05) relative to the previous stage of the study; * - intergroup statistically significant differences.

As can be seen from the table: the SI at 5 min after birth significantly exceeded the upper limits of "stress norm", being 1432.6 ± 50.4 units in Group 1, and 1935.6 ± 80.4 units in Group 2, The neonatal rate in both groups decreased significantly 24 hours after birth and was equal to 731.8 ± 22.8 standard units in the 1st group, and 796.8 standard units in the 2nd group, and in the 2nd group 796.8 ± 20.2 standard units, which suggests that the defects of cardiac rhythm regulatory systems

and sympathoadrenal mechanisms of rhythm regulation were still quite pronounced. The concentration of SC in umbilical cord blood at 5 min after birth in infants of the 1st group was significantly higher (591,8 ± 35,6nmol/l) in comparison with infants of the 2nd group (338,6±22,4nmol/l), which shows the preserved and more active physiological reaction of hypothalamic-pituitary-adrenal system to birth process in newborns delivered in conditions with EB-based CA.

A lower CK concentration in the group of infants delivered under OMA conditions with AVL (Group 2) indicates depression of the functional state of the hypothalamic-pituitary-adrenal system which is a consequence of the stress reaction of the mother's organism to general anesthesia and drug load. Two hours after birth, SpO2 in Group 1 neonates was 92.9 ± 0.05%, and 91.2 ± 0.1% in Group 2, which indicates marked depression of respiratory function which must be corrected by oxygen therapy. In 24 hours after birth, in the process of post-syndrome intensive care, SpO2 in both study groups increased significantly up to 96,3±0,2% and 96,4±0,3% respectively.

Conclusions. These studies have shown a less pronounced negative effect of VAS with IVL based on epidural blockade with reduced concentrations of local anesthetics on neonates. Under conditions of epidural blockade, the newborn organism's adaptive capacity during early adaptation to extrauterine conditions is maintained to a greater extent, despite the extremely unfavorable initial background (prematurity, NK and a pronounced decrease of maternal coronary reserves associated with severe atrioventricular stenosis (1.9-1.0 cm2). The results obtained allow recommending CA based on epidural blockade with the use of reduced concentrations of local anesthetics during delivery by caesarean section in parturients with severe mitral stenosis.

List of references:

1. IL Sharipov, JT Yusupov, BK Xolbekov PERSONALIZATION AND PREVENTATIVE PREMEDICATION: USED DRUGS VALUE AND EFFICIENCY //Web of Scientist: International Scientific Research Journal 3 (02), 740-748
2. Matlubov Mansur Muratovich, Muminov Abdukhalim Abduvakilovich, & Yusupov Jasur Tolibovich. (2021). Assessment of the degree of preservation of coronary reserves in pregnant women with mitral stenosis. CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES, 2(1), 20-23. https://doi.org/10.47494/cajmns.v2i1.64
3. Акалаев Рустам Нурмухамедович, Матлубов Мансур Муратович, Лодягин Алексей Николаевич, Стопницкий Амир Александрович, Хожиев Хусниддин Шодмонович ПСИХОСТИМУЛЯТОР ВОСИТАЛАРИ БИЛАН ЎТКИР ЗАҲАРЛАНИШ // Вестник экстренной медицины. 2020. №3. URL: https://cyberleninka.ru/article/n/psihostimulyator-vositalari-bilan-tkir-za-arlanish (дата обращения: 03.05.2022).
4. Баевский Р.М., Кирилов С.З., Клецкий С.З. Математический анализ изменений сердечного ритма при стрессе. М.: Наука; 1984. 22 с.
5. Баратова Л.З. Автореферат дис. канд. мед. наук Анестезиологическое обеспечение абдоминального родоразрешения у беременных с недостаточностью кровообращения. Ташкен .
6. Жониев С. Ш. Гемодинамические аспекты при многокомпонентной общей анестезии в эндокринной хирургии //Medicus. – 2020. – №. 5. – С. 8-12.
7. Кайгородцева Т.В., Михеева П.А. Безопасная беременность и здоровье новорожденных: Обзор документационного центра ВОЗ. Информационный бюллетень для руководителей здравоохранения. 2007.-№25.-с.1-6.
8. Кравцова А.Г., Гарбуз И.Ф., СтаросоцкаяС.И. Адаптационные возможности детей, рожденных путем операции кесарева сечения //Международный журнал прикладных и фундаментальных исследований. – 2014. – № 3-2. – С. 104-106;URL: https://applied-research.ru/ru/article/view?Id=4860).

9. Лебединский К.М., Шевкуленко Д.А. Гемодинамические осложнения и критические инциденты при центральных нейроаксиальных блокадах: эпидемиология и механизмы развития //Анестезиология и реаниматология. – 2006. - № 4. – С. 76-78.
10. Матлубов М. М., Нематуллоев Т. К., Хамдамова Э. Г. СРАВНИТЕЛЬНАЯ ОЦЕНКА ГЕМОДИНАМИЧЕСКИХ ЭФФЕКТОВ СПИНАЛЬНОЙ АНЕСТЕЗИИ В ЗАВИСИМОСТИ ОТ ПОЛОЖЕНИЯ БОЛЬНОГО ПОСЛЕ ВВЕДЕНИЯ ГИПЕРБАРИЧЕСКОГО РАСТВОРА БУПИВАКАИНА БОЛЬНЫМ С ГИПЕРТОНИЧЕСКОЙ БОЛЕЗНЬЮ //Высшая школа: научные исследования. – 2020. – С. 100-107.
11. Насриев Сухроб Ашурович, Хамдамова Элеонора Гаффаровна, Маллаев Сурат Саъдуллаевич, Акрамов Баходир Рахмонович, Пардаев Шукур Куйлиевич Гемодинамический эффект селективной спинальной анестезии при проктологических операциях // Достижения науки и образования. 2018. №7 (29). URL: https://cyberleninka.ru/article/n/gemodinamicheskiy-effekt-selektivnoy-spinalnoy-anestezii-pri-proktologicheskih-operatsiyah (дата обращения: 03.05.2022).
12. Насриев Сухроб Ашурович, Хамдамова Элеонора Гаффаровна, Маллаев Сурат Саъдуллаевич, Пардаев Шукур Куйлиевич Изменение периферической гемодинамики во время проведения седельной спинальной анестезии при проктологических операциях // Вопросы науки и образования. 2018. №7 (19). URL: https://cyberleninka.ru/article/n/izmenenie-periphericheskoy-gemodinamiki-vo-vremya-provedeniya-sedelnoy-spinalnoy-anestezii-pri-proktologicheskih-operatsiyah (дата обращения: 03.05.2022).
13. Насриев Сухроб Ашурович, Хамдамова Элеонора Гаффаровна, Маллаев Сурат Саъдуллаевич, Пардаев Шукур Куйлиевич Изменение периферической гемодинамики во время проведения седельной спинальной анестезии при проктологических операциях // Вопросы науки и образования. 2018. №7 (19). URL: https://cyberleninka.ru/article/n/izmenenie-periphericheskoy-gemodinamiki-vo-vremya-provedeniya-sedelnoy-spinalnoy-anestezii-pri-proktologicheskih-operatsiyah (дата обращения: 03.05.2022).
14. Овечкин А.М. Возможности и особенности проведения нейроаксиальной анестезии у пациентов с тяжелой сопутствующей патологией //Регионарная анестезия и лечение острой боли. 2009. Том III, № 3. – С. 36-47.
15. Окороков А.Н. Диагностика болезней внутренних органов. Т. 9 «Диагностика болезней сердца и сосудов»; - Минск: Мед. лит. 2009. – С. 258-305
16. Семенихин А.А., Баратова Л.З. Оценка эффективности регионарных блокад сниженными концентрациями местных анестетиков. //Регионарная анестезия и лечение острой боли. 2009. Т IV (4). С. 21-27.
17. Семенихин А.А., Юсупбаев Р.Б. Пути снижения операционно-анестезиологического риска у беременных с недостаточностью кровообращения: научное издание//журнал теоретической и клинической медицины. – Ташкент, 2013. – С. 46-48.
18. Султанов С.Н., Умиров Л.Р. Акушерская тактика при умеренно выраженном стенозе атриовентрикулярного отверстия. //Новости дерматовенерологии и репродуктивного здоровья. – Ташкент, 2010. - №4 – С. 22-25.
19. Чернуха Е.А., Комисарова Л.М., Байбарина Е.Н. и др. Течение послеоперационного периода и периода адаптации новорожденных в зависимости от вида обезболивания при операции кесарева сечения. Акушерство и гинекология. -2003; 3:12-15
20. Чимаров В.Н., Крылов В.И. Анализ кардиоинтервалограммы у детей. Тюмень 1988. С. 15.

21. Шифман Е.М., Филиппович Г.В. Отдельные главы из монографии «Спинномозговая анестезия в акушерстве» постпункционная головная боль. //Регионарная анестезия и лечение острой боли. 2014. Т. 8. № 1. С. 31-46.
22. Эклампсия–грозное осложнение беременности, родов и послеродового периодаД Абдуллаев, С Гайибов, М Абдуллаева… - Журнал проблемы биологии и медицины, 2017
23. Юсупбаев Р.Б. Умеров А. К вопросу о родоразрешении беременных с заболеваниями сердца: научное издание. //Журнал теоретической и клинической медицины. – Ташкент, 2012. - №3. – С. 100-103.