COMPARATIVE CHARACTERISTICS OF ANESTHESIA TYPE ON NEWBORNS' CONDITION

Dermentli Al., Stavrova-Hristova R., Johanova Sl.
UMHAT "Dr. G. Stranski" Pleven

Abstract

Most of the drugs used in anesthesiology penetrate into placenta. This is one of the reasons for the preference of regional techniques and in particular spinal anesthesia for analgesia during cesarean section. The aim of our study was to compare the degree of neonatal depression under general and spinal anesthesia. We received the necessary information from the patients' medical history, document N2 (pre-anesthesia consultation) and the anesthesia sheet. The results show comparable newborn Apgar values under the two types of anesthesia. Much more significant factors influencing the condition of the newborn are its maturity, weight and height and intrauterine suffering of the fetus. The anesthetics used today for analgesia of operative birth have a minimal depressant effect on the fetus, although they cross the placental barrier.

Key words*: anesthesia, depression of the newborn*

Most of the drugs used in anesthesiology cross placenta. This is one of the reasons for the preference of regional techniques and in particular spinal anesthesia for analgesia during cesarean section.

Many of our patients refuse regional anesthesia techniques, despite the information they receive about the greater likelihood of complications associated with the use of general anesthesia and the benefits of subarachnoid analgesia.

The benefits of spinal anesthesia for the woman giving birth have been proven in many studies. There are also a large number of studies on the effect of the type of anesthesia on the condition of the newborn.

Purpose. The aim of the study was to compare the degree of depression of the newborn by cesarean section with general or spinal anesthesia.

Materials and Methods. The study period is January-March 2018 and January - March 2019. We received the necessary information from the patients' medical history, document No. 2 for pre-anesthesiological consultation and the anesthesia sheet. For 01-03.2019, 80 women gave birth by cesarean section, 86 newborns, including four pairs of twins and one triplets. For the same period 2018, 95 women have given birth to 101 newborns, of which six pairs of twins. Or a total of 175 mothers and 187 newborns. Of these cesarean sections, 105 are planned and 82 are emergency. Under general anesthesia, 133 and 42 are spinal. After 37 g.s. have given birth to 145 of the women. In the eighth and smaller lunar month were 13 of the mothers. The average weight of the newborns is 3114.3 g (from 1200 to 4615 g) and the average height is 49.1 cm (from 34 to 55 cm).

Results. We chose to study equal periods of two consecutive years so that we could also see the trend in the type of anesthesia. For 2018, the total anesthetics are 80, which makes 84% of all, respectively the spinal ones are 15 (16%). For 2019 general anesthetics were 53 (66%) and spinal anesthetics 27 (34%). This is twice as many regional anesthetics compared to the same period in 2018.

Of the 187 newborns born as planned, 92 were full-term infants, 70 of them with general anesthesia and 22 with spinal anesthesia. 56 are urgent term operations. Of these, 45 were under general anesthesia and 12 were infants with spinal anesthesia (Table 1).

total newborns	187 General anesthesia 139 (74%)		Spinal anesthesia 48 (26%)	
	Planned cesarean sections 80 (58%)	Emergency cesarean sections 59 (42%)	Planned cesarean sections 32 (67%)	Emergency cesarean sections 16 (33%)
full-term newborns	149 General anesthesia 115 (77%)		Spinal anesthesia 34 (23%)	
	Planned cesarean sections 70 (61%)	Emergency cesarean sections 45 (39%)	Planned cesarean sections 22 (65%)	Emergency cesarean sections 12 (35%)
born in the 9th lunar month	22			
	General anesthesia 13 (59%)		Spinal anesthesia 9 (41%)	
	Planned cesarean sections 7 (54%)	Emergency cesarean sections 6 (46%)	Planned cesarean sections 7 (78%)	Emergency cesarean sections 2 (22%)
born in 8 and less lunar month	16 General anesthesia 11 (69%)		Spinal anesthesia 5 (31%)	
	Planned cesarean sections 3 (27%)	Emergency cesarean sections 8 (73%)	Planned cesarean sections 3 (60%)	Emergency cesarean sections 2 (40%)

Tabl. 1

The average weight of newborns was 3114.31 ± 669.32 g, and the average height was 49.09 ± 3.78 cm. Of all newborns, 26 (14%) weighed less than 2500 g and 6 (3%) weighed more than 4300g, 22 (12%) of the babies are under 47, and only 2 (1%) are newborns over 54. The data from the comparison Apgar score of newborns is shown in Table 2.

full-term newborns	General anesthesia		Spinal anesthesia	
	Planned cesarean sections	Emergency cesarean sections	Planned cesarean sections	Emergency cesarean sections
first minute	8(2-10)	8(2-10)	8(5-8)	8(8-10)
fifth minute	10(5-10)	10(5-10)	10(5-10)	10(9-10)
premature newborns	Planned cesarean sections	Emergency cesarean sections	Planned cesarean sections	Emergency cesarean sections
first minute	6(3-8)	6(3-8)	7(6-8)	7(6-8)
fifth minute	9(4-10)	7(3-10)	9(7-10)	9(7-10)

Tabl. 2. Apgar score of newborns

Apgar in all newborns over 2500g in the first minute is 8 (2-10), and in the 5th minute is 10 (5-10).

In newborns under 2500, it is 6 (3-8) in the first and 8 (3-10) in the fifth minute, respectively.

Newborns under 47 cm have an Apgar in the first minute 6 (3-8) and 8 (3-10) in the fifth minute.

Discussion

Numerous studies done suggest that both types of anesthesia are safe for the newborn, but regional anesthesia shows more benefits for the newborn (1, 2) because it suppresses him/her less. In some studies, the results show similar Apgar scores for both types of anesthesia (3, 4).

Others conclude that newborns who are more affected by general anesthesia are those who have previously suffered during their fetal development (5). Our results also confirm that there is no significant difference in Apgar score in full-term infants. In preterm infants, such a difference is reported, but the number of newborns covered is insufficient.

Conclusions

The results show comparable Apgar values in full-term infants under both types of anesthesia. Much more significant factors influencing the condition of the newborn are its maturity, weight and height and intrauterine suffering of the fetus. The anesthetics used today for analgesia of operative birth have a minimal depressant effect on the fetus, although they cross the placental barrier.

References

1. Alfredo Mancuso, Antonio de Vivo, Annamaria Giacobbe,Valentina Priola, Laura Maggio Savasta, Marianna Guzzo,Dominique de Vivo, & Alba Mancuso. General versus spinal anaesthesia for elective caesarean sections: effectson neonatal short-term outcome. A prospective randomised study. The Journal of Maternal-Fetal and Neonatal Medicine, October 2010; 23(10): 1114–1118

2. Ipek Saadet Edipoglu, Fatma Celik, Elif Cirakoglu Marangoz, Gulin Haroglu Orcan. Effect of anaesthetic technique on neonatal morbidity in emergency caesarean section for foetal distress. PLOS ONE. November 16, 2018
3. J-Y. Hong, Y-S. Jee, H-J. Yoon, S. M. Kim. Comparison of general and epidural anesthesia in elective cesarean section for placenta previa totalis: maternal hemodynamics, blood loss and neonatal outcome, International Journal of obstetric anesthesia 12,12-16,2003
4. John Jairo Paez L., Jose Ricardo Navarro, Regional versus general anesthesia for cesarean section delivery. Rev colomb anestesiol . 2012;40(3):203–206
5. Charles S Algert, Jennifer R Bowen, Warwick B Giles,Greg E Knoblanche, Samantha J Lain and Christine L Roberts. Regional block versus general anaesthesia for caesarean section and neonatal outcomes: a population-based study. *BMC Medicine* 2009, 7:20