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DELIVERY IN ANALGESIA
AND ANAESTHESIA IN THE GENERAL
HOSPITAL IN SREMSKA MITROVICA*

ANALGEZIJA I ANESTEZIJA
U POROĐAJU U OPŠTOJ BOLNICI
U SREMSKOJ MITROVICI *

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Key words

delivery, anaesthesia, analgesia.

Ključne reči

porođaj, anestezija, analgezija.

Abstract

INTRODUCTION: Elimination and reducing pain in delivery differs from any other analgesia and anaesthesia, therefore there are several ways to eliminate delivery pain. Ever since the beginnings of the human society, there have been attempts to understand, reduce and eliminate delivery pain. Anaesthesia in obstetrics (regional - epidural, spinal or general) is used to surgically complete delivery and perform various types of obstetric surgery. Analgesia is used to eliminate pain during vaginal delivery, and can be regional (epidural, subarachnoidal-spinal, combined spinal-epidural analgesia), or general analgesia. **GOAL:**The goal of this paper is to present the frequency of using analgesia and anaesthesia in delivery at our Department.

MATERIALS AND METHODS: Delivery protocols, delivery case histories, anaesthesiology protocols, and anaesthesia lists for a five year period (2004-2008) were subjected to retrospective review.

RESULTS: In the period from 1/1/2004-12/31/2008, the Maternity Ward in Sremska Mitrovica performed a total of 7068 deliveries. Of this number, in 1614 (22.83%) cases, delivery was completed by caesarean section. General anaesthesia was applied in 696 (43.21%) cases, and successful spinal anaesthesia in 895 (53.22%) cases. Reviewed years show a pronounced trend of growth for successful spinal anaesthesia in caesarean section [24 (7.95%) → 356 (87.04%)], compared to general anaesthesia [278 (92.05%) → 43 (10.52%)]. In these 5 years there were 143 (2.02%) epidural analgesias finished by vaginal delivery with a noticeable trend of growth by calendar years [10 (0.70%) → 69 (5.32%)]. Epidural analgesia was applied in a total of 166 (2.34%) cases.

DISCUSSION: A broader implementation of painless delivery, requires education both for personnel and for pregnant women and women ready to give birth. By educating pregnant women in counseling centers, informing them via the Internet and via brochures about painless delivery and caesarean section, we will influence the number of patients who wish to have a painless delivery. This will result in the need for more obstetric anesthesiologists.

CONCLUSION: Joint efforts of obstetricians, anaesthesiologists, neonatologists and their associates, can provide safety and comfort for the mother and child during delivery.

INTRODUCTION

Delivery and delivery pains are a source of stress affecting the course of delivery, the mother and the newborn baby. During delivery, pain results from uterine contractions, but also from distension and rupture of genital tissues, and lesions of surrounding organs in the pelvis. Mothers react differently to delivery pain, which is regarded as the strongest

pain that can be endured. During the last 40 years, closer cooperation between obstetricians, perinatologists and anaesthesiologists has resulted in new knowledge about pregnancy, delivery, the fetus and the neonate. Latest knowledge in the field of pharmacology, pharmacokinetics and pharmacodynamics of anaesthetics has enabled its safe and broader application, and thus accelerated development of analgesia and anaesthesia in obstetrics.

Elimination and reducing pain in delivery differs from any other analgesia and anaesthesia, therefore there are several ways to eliminate delivery pain. By type, they can be divided into pharmacological and nonpharmacological methods. Using pharmacological agents, analgesia and anaesthesia can be regional or general. Nonpharmacological methods imply educating the pregnant woman, emotional support during delivery and various physical and psychological techniques for reducing pain during delivery. Analgesia is used to eliminate pain during vaginal delivery, and can be regional (epidural, subarachnoid-spinal, combined spinal-epidural analgesia) or general analgesia.

Conditions for epidural analgesia in spontaneous delivery of a healthy mother without obstetric complications are: the mother must be in the active phase of delivery and feel medium or strong pain during uterine contractions, contractions must be regular with good intensity and duration, the leading section of the fetus should be lowered into the pelvis, cervical dilatation in a multipara should be 3-4cm, and in a primipara 4-5 cm. Anaesthesia (regional-epidural, spinal or general) in obstetrics is used for surgical completion of delivery and to perform various obstetric operations.

The old syntagma "To reduce pain is divine" pronounced by Galen (129 - 200 BC) is still valid. Ever since the human society has existed, there have been attempts to understand, reduce and eliminate delivery pain. In modern obstetrics, a woman must feel no pain.

The incidence of painless delivery differs depending on the level of development of health care in a specific country and region.

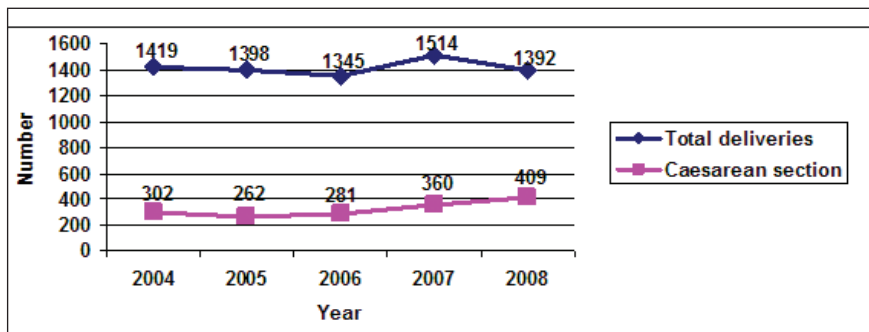
In the Maternity Ward in Sremska Mitrovica the first epidural analgesia in vaginal delivery was applied in 1999, by the anaesthesiologist Dr. Zdravko Adzija. From 1999-2004 there were approximately ten cases of epidural analgesia annually. The first spinal anaesthesia in caesarean section was applied by Dr. Dragan Ladjinovic in 2001, and since 2001-2004 it has been used in individual cases. An abrupt growth in the frequency of obstetrics spinal anaesthesia as well as the use of epidural analgesia were noted since 2006.

GOAL

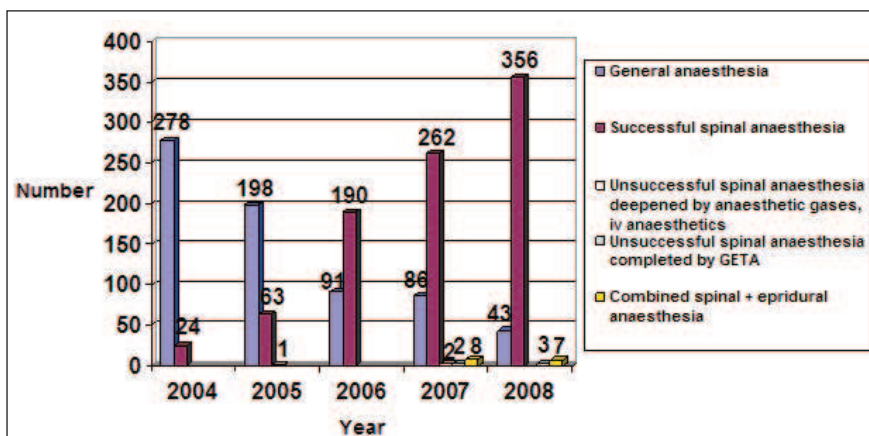
The goal of this paper is to present the frequency of analgesia and anaesthesia in delivery in our Department.

Deliveries	Year					Total	\bar{x}
	2004	2005	2006	2007	2008		
Total deliveries	1419	1398	1345	1514	1392	7068	1413
Caesarean section	302	262	281	360	409	1614	322
Caesarean section,%	21.28	18.74	20.89	23.77	29.38	100.00	22.83

Table 1. Distribution of the total number of deliveries and caesarean sections



Graph 1. Distribution of the total number of deliveries and caesarean sections



Graph 2. Distribution of analgesia and anaesthesia in caesarean section

Analgesia and anaesthesia	Year					Total and %
	2004	2005	2006	2007	2008	
General anaesthesia	278 92.05%	198 75.57%	91 7.95%	86 23.89%	43 10.52%	696 43.12%
Successful spinal anaesthesia	24 7.95%	63 24.04%	190 67.62%	262 72.78%	356 87.04%	895 53.22%
Unsuccessful spinal anaesthesia deepened by anaesthetic gases, iv anaesthetics		1 0.38%		2 0.55%		3 0.18%
Unsuccessful spinal anaesthesia completed by GETA				2 0.55%	3 0.73%	5 0.30%
Combined spinal + epidural anaesthesia				8 2.22%	7 1.71%	15 0.92%
Total	302	262	281	360	409	1614

GETA¹- General Endotracheal Anaesthesia

Table 2. Distribution of analgesia and anaesthesia in caesarean section

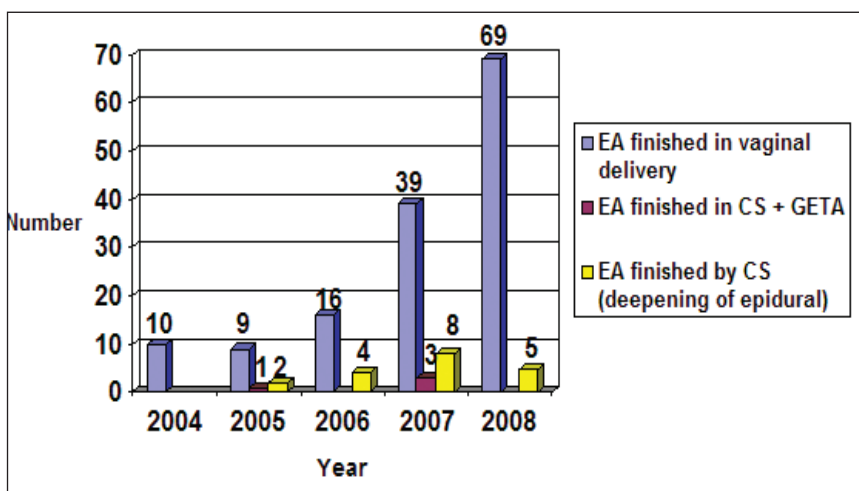
MATERIALS AND METHODS

Delivery protocols, delivery case histories, anaesthesiology protocols, and anaesthesia lists for a five year period (2004-2008) were subjected to retrospective review.

Epidural analgesia	Year					Total and %
	2004	2005	2006	2007	2008	
EA ending in vaginal delivery	10	9	16	39	69	143 2.02%
EA ending in CS + GETA		1		3		4 0.05%
EA ending in CS (deepening of epidural)		2	4	8	5	19 0.27%
Number %	10 0.70%	12 0.86%	20 1.49%	50 3.30%	74 5.32%	166 2.34%
Total deliveries	1419	1398	1345	1514	1392	7068 100.00

GETA-General Endotracheal Anaesthesia
 EA²- Epidural Analgesia
 CS³- Caesarean Section

Table 3. Distribution of epidural analgesia and manner of finishing delivery



Graph 3. Distribution of epidural analgesia and manner of finishing delivery

RESULTS

In the 1/1/2004-12/31/2008 period there were a total of 7068 deliveries in the Maternity Ward of the General Hospital in Sremska Mitrovica. Of this number in 1614 (22.83%) mothers delivery was completed by caesarean section. The annual average for the period was 1413 deliveries and 322 caesarean sections. (Table 1, Graph 1)

Distribution of analgesia and anaesthesia in caesarean section is presented in Table 2 and Graph 2. General endotracheal anaesthesia was used in 696 (43.12%) of cases, and succesful spinal anaesthesia in 895 (53.22%). In reviewed years there is a noticable pronounced trend of growth for spinal anaesthesia in caesarean section [24 (7.95%) → 356 (87.04%)] relevant to the decreasing trend for general anaesthesia [278 (92.05%) → 43 (10.52%)]. In individual cases unsuccessful spinal anaesthesia was deepened using anaesthetic gases or intravenous anaesthetics (3; 0.18%), completed under general endotracheal anaesthesia (5; 0.30%), by use of combined spinal and epidural anaesthesia (15; 0.92%).

Table 3 and Graph 3 present the distribution of epidural analgesia. In the reviewed 5 years there were 143 (2.02%) epidural analgesias ending in vaginal delivery. There is a noticable growth trend by calendar years [10 (0.70%) → 69 (5.32%)]. Table 3 also presents deliveries in epidural analge-

sia which after initial vaginal delivery had to be completed by caesarean section for obstetrics indications. Epidural analgesia was used in a total of 166 (2.34%) cases.

DISCUSSION

Regional anaesthesia in delivery in developed world countries as well as in our delivery wards are being used more and more extensively. Approximately 25% of women in Great Britain and 66% of women in the USA are delivered using epidural analgesia. Today, in Serbia under 5% of women annually are delivered under epidural analgesia. In caesarean section the use of anaesthesia in our country shows significant differences compared to the world. In Great Britain regional anaesthesia for planned caesarean section is used in 91% of cases, for urgent caesarean section in 27% of cases, while for Serbia facts are following: for planned caesarean section in 7% of cases, for urgent caesarean section in 1% of cases (2005 data). In our hospital, the frequency of spinal anaesthesia in caesarean section was from 7.95% in the first reviewed year, to 89% in the last reviewed year. Other authors state a continuing low level of use of spinal anaesthesia in caesarean section, of not over 0.80% (2000-2004).

The number of deliveries in epidural analgesia, even though having a tendency of growth, is still low. The relatively low number of painless deliveries also results from controversies present relevant to the effect on the course of delivery. The most frequent reasons are fear and lack of information among pregnant woman and women giving birth relevant to the benefits and potential complications, insufficient training of anaesthesiologists and gynecologists and obstetric nurses to guide delivery with analgesia, the fact that painless delivery is not always planned and that there is no organized 24h epidural service, the lack of introduction of patient controlled analgesia (PCA⁴) when the patient herself participates in the control of delivery pain, and in some institutions also an insufficient number of cardiotocographs. According to our data in the reviewed 5 years epidural analgesia was used in 2.34% of cases, while only in one year, 2008, there were 5.32%. In all our mothers during delivery, fetal sounds, intensity and frequency of uterine contractions, arterial blood pressure and pulse, were constantly monitored. Our Maternity Ward uses continuous epidural analgesia, and if required, bolus patient controlled analgesia (PCA). Relevant to the cost benefit for use of analgesia and anaesthesia, we can say that this is significant. The average price of general anaesthesia in caesarean section is 322±9.7 euro, the average price of

²EA-Epidural Analgesia.

³CS - Caesarean Section

⁴ PCA- Patient Controlled Analgesia

anaesthetics and medical plastic devices for spinal anaesthesia is 100±5.6 euro, while the price for epidural analgesia is 28 euro. Therefore, savings for 100 caesarean sections amount to 20,000 euro.

A broader implementation of painless delivery, requires education both for personnel and for pregnant women and women ready to give birth. By educating pregnant women in counseling centers, informing them via the Internet and via brochures about painless delivery and caesarean section, we will influence the number of patients who wish to have a painless delivery. This will result in the need for more obstetric anaesthesiologists. Today, especially in maternity wards in secondary and tertiary level hospitals, there is a lack of 24h epidural services. Technical equipment is also very important, especially relevant to a sufficient number of pumps for continuous delivery of anesthetics, anesthetic solutions, anesthesiological surgical equipment, and cardiotocographs.

CONCLUSION

Up to date knowledge about pain and the therapy of pain, has created the possibility for eliminating delivery pain. Joint efforts of obstetricians, anaesthesiologists, neonatologists and their associates can create safety and comfort for the mother and the child during delivery.

ABBREVIATIONS

GETA- General Endotracheal Anaesthesia
EA- Epidural Analgesia
CS- Caesarean Section
PCA- Patient Controlled Analgesia

Apstrakt

UVOD: Uklanjanje i ublažavanje bola u porođaju razlikuje se od svake druge analgezije i anestezije te i prema tome postoji više načina za uklanjanje porođajnih bolova. Od kada postoji ljudsko društvo, postoje pokušaji razumevanja, ublažavanja i otklanjanja porođajnog bola. Anestezija (regionalna- epiduralna, spinalna ili opšta) u akušerstvu primenjuje se za operativno završavanje porođaja i izvođenje različitih akušerskih operacija. Analgezija se primenjuje za otklanjanje bolova u toku vaginalnog porođaja i može biti regionalna (epiduralna, subarahnoidalna-spinalna, kombinovana spinalno-epiduralna analgezija) ili opšta analgezija.

CILJ RADA: Cilj rada je da prikazemo učestalost primene analgezije i anestezije u porođaju na našem odeljenju.

MATERIJAL I METODE: Retrospektivno su obrađeni porođajni protokoli, istorije porođaja, anesteziološki protokoli i liste anestezije u petogodišnjem periodu (2004-2008.god.).

REZULTATI: U Porođilištu u Sremskoj Mitrovici u periodu od 1.1.2004-31.12.2008.god obaljeno je ukupno 7068 porođaja. Od tog broja kod 1614 (22,83%) porođilja porođaj je dovršen carskim rezom. Opšta anestezija primenjena je u 696 (43,21%) slučajeva i uspešna spinalna anestezija u 895 (53,22%). U ispitivanim godinama primetan je izražen trend porasta primene uspešne spinalne anestezije kod carskog reza 24 (7,95%) → 356 (87,04%) u odnosu na opštu anesteziju 278 (92,05%) → 43 (10,52%). Za 5 godina bilo je 143 (2,02%) epiduralnih analgezija koje su završene vaginalnim porođajem i primetan je trend porasta po kalendarskim godinama 10 (0,70%) → 69 (5,32%). Epiduralna analgezija primenjena je ukupno u 166 (2,34%) slučajeva.

DISKUSIJA: Za širu primenu bezbolnog porođaja, neophodno je edukovati i osoblje i trudnice i porodilje. Edukacijom trudnica u savetovalištim, informisanjem preko interneta i brošurama o bezbolnom porođaju i carskom rezu utičaćemo na povećanje broja pacijentkinja koje žele da se porođaju bezbolno. To će usloviti potrebu za povećanjem broja akušerskih anesteziologa.

ZAKLJUČAK: Zajedničkim zalaganjem akušera, anesteziologa, neonatologa i njihovih saradnika, mogu se stvoriti bezbednost i udobnost za majku i dete u toku porođaja.

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