

# Epidural anesthesia from an obstetrics point of view

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## Summary

With the acceptance of new ideas in medicine and modernization of life styles, it is necessary to conduct delivery as a beautiful act of giving life with the least amount of pain possible using epidural anesthesia. Thus, not only is the physical aspect of delivery improved but also benefits from anesthesia are seen in obstetrics. To conduct epidural anesthesia successfully during delivery, certain conditions are necessary regarding the fetus and mother. Such conditions include an adequate Bishop score, fetal head presentation, the presence of amnion, adequate term of delivery and Doppler flows that do not compromise vaginal delivery. Primiparas in term pregnancies without pathological conditions related to mother or fetus were examined. The duration of delivery was observed in a group of primiparas that did not receive epidural anesthesia (group A) and a group of primiparas that received epidural anesthesia (group B). The study lasted one year.

**Key words:** Epidural anesthesia; Pregnancy.

## Introduction

With the acceptance of new ideas in medicine and the modernization of life styles, it is necessary to conduct delivery as a beautiful act of giving life with the least amount of pain possible. When a woman gives birth she is going through a beautiful but at the same time one of the hardest moments of her life. By making this act partially painless, not only is the physical aspect of delivery improved but also the benefits of epidural anesthesia in obstetrics can be appreciated.

It is important to point out clear limits of indications and contraindications of epidural anesthesia administration.

In addition to theoretically known facts, to successfully conduct epidural anesthesia during delivery, certain conditions are necessary regarding the fetus and mother. Such conditions include an adequate Bishop score, fetal head presentation, the presence of amnion, adequate term of delivery and Doppler flows that do not compromise vaginal delivery. Moreover, all conditions regarding the mother and the possibility of vaginal delivery need to be considered. Some contraindications for epidural anesthesia do exist but they are rare and include serious forms of coagulopathy, thrombocytopenia and pregnancy-induced hypertension (PIH), i.e. preeclampsia (PE) and HELLP (hemolysis erythrocytes, elevated liver enzymes, low platelets), and neurological conditions.

## Objective of the study

By administering epidural anesthesia, the psychological aspect of delivery is alleviated and the mother is enabled to adequately participate in the delivery itself.

As obstetricians we were interested in evaluating the possible significance of epidural anesthesia to the duration of delivery and the general condition of neonate postpartum.

## Materials and Methods

Primiparas in term pregnancies without pathological conditions related to mother or fetus were examined.

The term of delivery was determined adequately together with all the parameters related to the mother and fetus that enable delivery and administration of epidural anesthesia.

The duration of delivery in the group of primiparas that did not receive epidural anesthesia (group A) and in the group of primiparas that received epidural anesthesia (group B) was analyzed. The study lasted one year.

Eighty primiparas per each group were included for an adequate statistical comparison. Patients were selected randomly with the initial criteria the same for all patients to make the study valid. Tests were performed by the standard t-test.

## Results and discussion

It should be pointed out that in all cases there was a physiologic condition of both mother and fetus, and that delivery was always started the same way by oxytocine infusion in conditions where the Bishop score allowed an adequate delivery start.

Epidural anesthesia was induced when regular contractions (2 to 4 contractions in a 10-min period, 40 to 60 mmHg strong) were registered by cardiotocography (CTG).

Regardless of the cervix length, with dilatation not more than 2 cm, an epidural catheter was inserted in all patients in group B. The process of analysis was then started with appropriate therapy.

In group A identical therapy was started but without an epidural catheter. Dilatation was followed in relation to time, i.e. doctor's visits which were every two hours.

Moreover, patients were under continuous cardiotocographic monitoring and a doctor responsible for following the patient recorded the pain and psychological condition of the mother.

In the group with epidural anesthesia we used a standard procedure (tap area L2-L3 or L3-L4). Anesthetics

and bupivacaine 0.5% = .375% and 0.25% (most frequently 0.375% or 0.25%) were used with doses: initial (test) dose 3 ml in one hour (also 45 minutes or 1.5 h) 4 or 5 ml (max up to 2 mg/kg total). It was possible to combine 3 ml 0.375% bupivacaine and 0.5 ml fentanyl in one dose. When manual cavum uterus revision was needed we administered approximately 5 ml 0.25% bupivacaine. Doses were adjusted according to each case individually.

## Conclusion

Summing up the results we have concluded the following:

1. Appropriate preparation, i.e. correct and precise selection of patients for epidural anesthesia is mandatory.
2. Adequate dosage, therapy and cooperation with the gynecologist and midwife are required.
3. The first stage is shorter with anesthesia.
4. The second stage is also shorter and more efficient without psychological sequel for the mother.
5. A shorter third stage, if there is no manual placenta extraction, omitting possible pathologic entities with local findings points to the existence of secondary cervix spasms and the impossibility of adequate placenta separation.
6. There were episiotomies in group A where as relaxation in group B enabled delivery without episiotomy.
7. The neonate's condition was better in group B because of shorter delivery time.
8. A pain scale for future mothers in group B may be useful.
9. Lactation was established.
10. A questionnaire about further pregnancies may be helpful.
11. Not only can childbirth be painless, fast and more efficient, but delivery is more civilized, i.e. removal of pain which is a basic principle of the Hippocratic Oath.
12. It should be remembered that conditions for epidural administration need to be in agreement with the obstetrician, adequate findings and detailed explanation, and the patient's agreement.

It is necessary that the routine administration of epidural anesthesia be diffused to enable appropriate education and cooperation between the gynecologist and anesthesiologist.

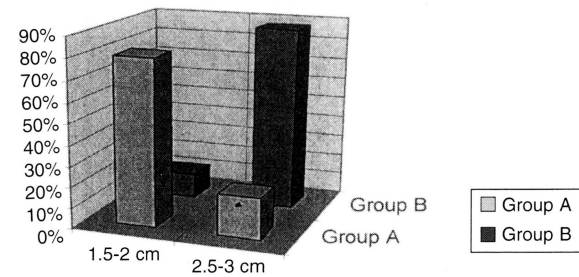
We also followed dilatation, pain sensitivity and cardiotocographic aspects in the non-epidural group.

Out of 80 women in group A that were induced without epidural anesthesia, dilatation was in the range 1.5 to 2 cm in the first six hours (three visits). In group B it was 2.5 to 3 cm for the same period (Table 1).

Group A demonstrated slower shortening and cervix dilatation in relation to patients in group B, thus according to previous findings in 40% of patients there was fast dilatation and cervix shortening in women undergoing epidural analgesia. Analysis (t-test) showed great statistical significance ( $p < 0.01$ ).

Delivery duration in group A: 8 h in 2% of the cases;

Table 1. — Duration of delivery.

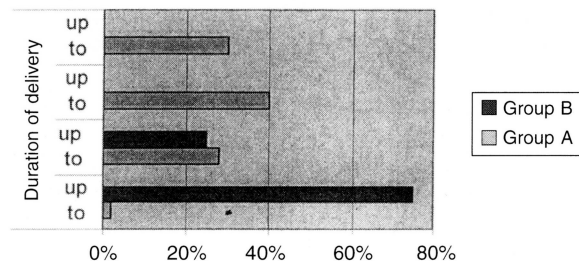


	1.5-2 cm	2.5-3 cm
Group A	80%	20%
Group B	12%	88%

12 h in 28% of the cases; 14-16 h in 40% of the cases; 18-20 h in 30% of the cases. No patients were delivered operatively.

In group B: 8 h in 75% of the cases; 12 h in 25% of the cases (Table 2).

Table 2. — Duration of delivery.



	up to 8 h	up to 12 h	up to 16 h	up to 20 h
Group B	75%	25%	0%	0%
Group A	2%	28%	40%	30%

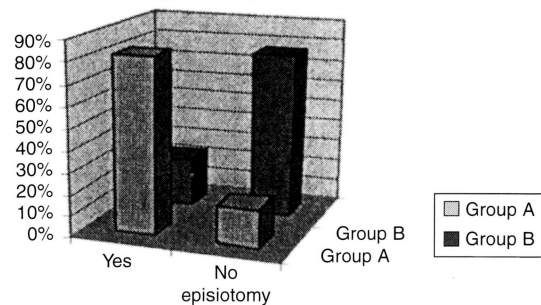
Examining episiotomus, bearing in mind tissue rigidity (individual and hard to evaluate), fetal dimensions, the existence of vaginal infections, i.e. vaginal duct disturbances gave these results:

In group A: 82% episiotomies.

In group B: 23% episiotomies.

The non existence of episiotomy in patients with epidural anesthesia was statistically significant ( $p < 0.01$ ) (Table 3).

Table 3. — Results of episiotomy.



	yes	No
Group A	82%	18%
Group B	23%	77%

Pain scale analysis in group A: In the first delivery stage, pain intensity was "moderate", in the second stage pain was "strong", and in the third stage it was "poor".

In group B: The pain scale was never above "poor" at all stages of delivery.

Second delivery stage analysis:

In group A expulsion lasted 5 to 7 min.

Forceps delivery was used in 1% of the cases.

In relation to deliveries without forceps there was no statistical significance of forceps usage ( $p < 0.05$ ).

In group B expulsion lasted 1.5 to 3 min.

There was no slow-down in expulsion which is attributed to adequate dosage and good coordination between anesthesiologist, gynecologist and midwife.

The third delivery stage lasted  $5 \pm 1.70$  min in group A while in group B it was  $3 \pm 1.20$  min.

Results of a faster and slower third stage in the group with epidural anesthesia are statistically significant ( $p < 0.05$ ).

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In group A there was 40% manual extraction of the placenta.

In group B there was 23% of uterine cavity manual revisions which was not statistically significant ( $p > 0.05$ ).

\* \* \*

Neonate conditions according to Apgar score in group A were most frequently 8 in over 85% of cases, 9 in 12% of cases, while in 3% of cases the score was under 8.

In group B, 87% of babies had an Apgar score of 9, 3%

had a score of 10 while in 10% of cases the score was 8/9 and 7/8 (under 8).

\* \* \*

Postpartum analysis of fetal acidobase status in group A and in group B: In group A the mothers achieved lactation in the period between 48 to 72 h postpartum while group B lactation was achieved within 48 h.

Patients were also questioned about their desire for another pregnancy which can indicate the mother's psychological condition.

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