

# Observation on Effects of Lumbar Epidural Analgesia for Painless Labor

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## Abstract

**Objective:** To study the effects of epidural analgesia during labor on the mother and newborn. To find out the effects of epidural analgesia on the course of labor. To compare the epidural analgesia deliveries with those deliveries where no pain relief method is used.

**Materials and Methods:** This is a prospective observational study. A total of 50 primipara patients in labor were studied, and a comparative study was done with 50 deliveries as control during August 2007 to August 2009 in Choithram Hospital and Research Center, Indore.

**Result:** The Result of this study suggests that: (1) The progress of labor was not hampered in epidural group. (2) There was no significant difference in instrumental and caesarian section rate. (3) There was no serious complication, and there was no side effect of drugs applied or the technique itself. (4) There were good pain relief and high satisfaction in epidural groups.

**Conclusion:** The epidural analgesia does not affect the duration of labor and no bad effect on the fetus, and there was no increase in instrumental and operative procedures. Hence, this procedure is quite safe, well-accepted, and tolerated by patients.

**Key words:** Analgesia, Labor, Patients

## INTRODUCTION

The distress and pain which women often endure while they are struggling through a difficult labor are beyond description.

We can change the perception of labor pain with the introduction of labor analgesia. Attempts to alleviate labor pain on demand have been made since the 18<sup>th</sup> century when analgesic drugs such as morphine and pethidine were used.

The credit of introducing the obstetrical anesthesia goes to three eminent physicians:

- James Young Simpson of Scotland

- John Snow of England
- Water Changing of USA.

In 1885, coring performed the first epidural block for relief of pain and the drug used was cocaine.

Epidural analgesia provides complete analgesia in the majority of laboring woman.<sup>1</sup>

In a survey of 1000 consecutive patients who choose a verity of analgesic technique for labor and vaginal delivery, pain relief and overall satisfaction with birth experience were grater in patients who received epidural analgesia.<sup>2</sup>

According to ACOG and The ASA - "In the absence of a medical contraindication, maternal request is sufficient medical indication for pain relief during labor."<sup>3</sup>

## MATERIALS AND METHODS

The patients included for study were those admitted in labor ward of Choithram Hospital and Research Center, Indore, from August 2007 to August 2009.

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My study was prospective observational study, and data collection was done by observing patients in labor room.

A total of 50 cases were studied in this series, and a comparative study was made with 50 deliveries as control during the same period. Inclusion and exclusion criteria which taken into account were as the following section.

#### Inclusion Criteria

- Primipara at term (in labor)
- Single fetus in cephalic presentation
- Cervical dilatation of more than 2-3 cm
- No contraindication to administration of epidural analgesia.

#### Exclusion Criteria

- Patients were excluded if they received an opioid drug preceding epidural analgesia
- Patients with H/O coagulation disorder
- Patients with malpresentation and multiple pregnancy
- Patients with major degree of CPD.

A detailed history was taken and a thorough general physical and obstetrical examination was done and patient's consent was taken before giving epidural analgesia. Epidural analgesia was given only when labor was well established, and cervix was at least 3-4 cm dilated. In epidural analgesia, small doses of medicine introduced into lower back spine into epidural space (L3-4) using 18 G epidural catheter. Initially, 8 ml bolus (0.125% of bupivacaine with 50 mg fentanyl) was given followed by infusion of 0.0625% bupivacaine +2 mg/ml fentanyl at 6-8 ml/h.

Once the baby is delivered the infusion was stopped and catheter was removed once episiotomy is sutured. Close watch on blood pressure, pulse, respiration was given.

## RESULT

In this study, we have shown in Tables 1-5.

Figure 1 shows that there was no significant difference between epidural and control groups.

One lower segment cesarean section (LSCS) was required in epidural group because of non-progress of labor, where in control Group 4 cases underwent LSCS one because of non-progress of labor and 3 because of fetal distress.

There was no fetal mortality in any group.

Around 43 cases of the epidural group were completely relieved of pain and 7 cases were partially relieved, whereas no one was relieved of pain in control QMP.

Patients satisfaction: About 45 patients of epidural group were fully satisfied and 5 patients were partially satisfied. Whereas no patient was fully satisfied in control group, but 4 patients to were satisfied even without any pain relief (Figures 2-5).

## DISCUSSION

Painless labor with epidural analgesia has various advantages which includes the following section.

- Absolute pain relief
- Patient remains conscious and cooperative
- Depressant drugs are avoided

**Table 1: Average duration of second stage of labor**

Group	Average duration of 2 <sup>nd</sup> stage of labor (min)	Maximum duration of 2 <sup>nd</sup> stage of labor
Epidural group	39 min	1 h 10 min
Control group	43 min	1 h

$P > 0.1, Z = 1.47$

**Table 2: Mode of delivery**

Type of delivery	Epidural group (%)	Control group (%)
Spontaneous	36 (72)	37 (74)
Forceps	02 (04)	02 (04)
Ventouse	11 (22)	07 (14)
LSCS	01 (02)	04 (08)

$P > 0.05$ , means no significant difference in both groups, LSCS: Lower segment cesarean section

**Table 3: Maternal morbidity and mortality**

Type of trauma	Epidural group (50) (%)	Control group (50) (%)
Hypotension	03 (06)	Nil
Episiotomy	46 (92)	44 (88)
Perineal laceration	03 (06)	05 (10)
PPH	02 (04)	04 (08)
Urinary retention	12 (24)	01 (02)
Pruritus	04 (08)	Nil

**Table 4: Fetal morbidity and mortality**

APGAR score	Epidural group (%)	Control group (%)
1 min (<7)	12 (24)	10 (20)
7-10	38 (76)	40 (80)
5 min (<7)	0 (0)	0 (0)
7-10	50 (100)	50 (100)

**Table 5: Comparison of degree of pain relief**

Pain relief	Epidural group (%)	Control group (%)
Complete	43 (86)	Nil (06)
Partial	07 (14)	Nil (06)

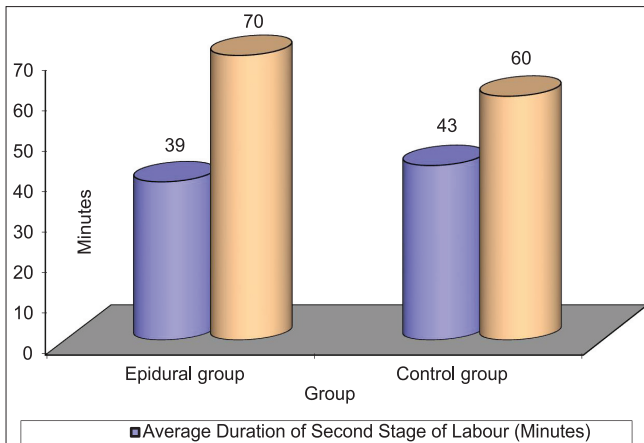


Figure 1: Comparison of duration of second stage of labor in epidural and control group

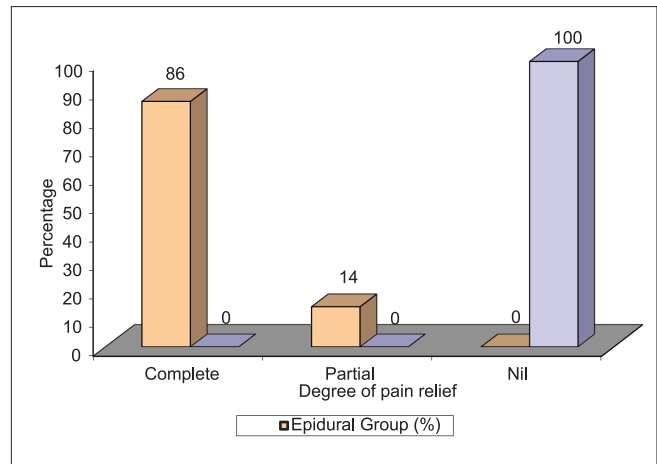


Figure 4: Degree of pain relief

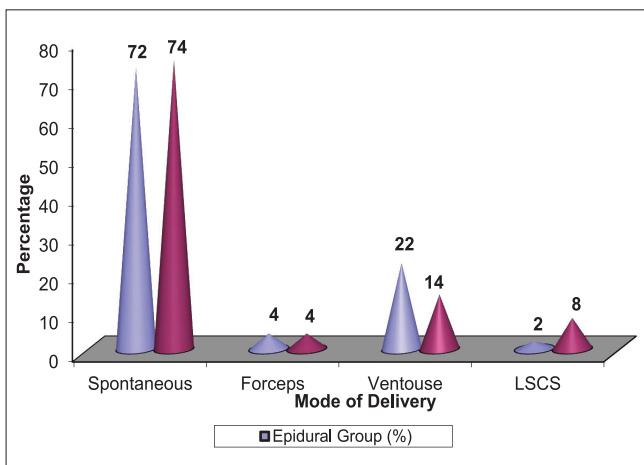


Figure 2: Comparison of mode of delivery

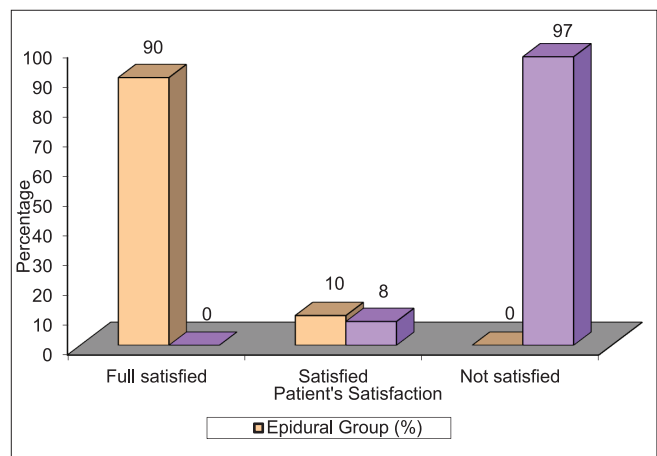


Figure 5: Comparison of patient's satisfaction

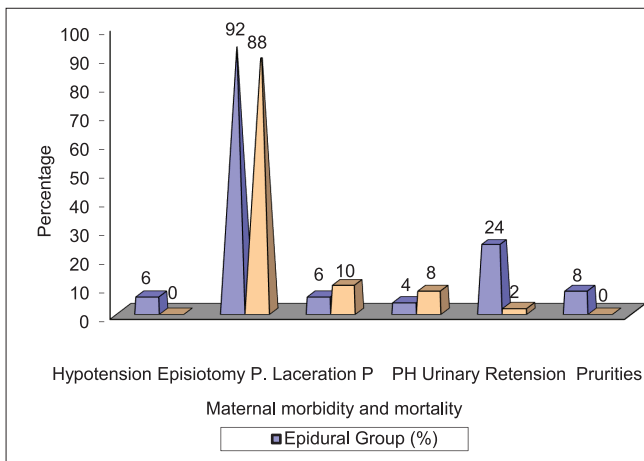


Figure 3: Maternal morbidity and mortality

- Operative delivery can be carried out whenever required without general anesthesia and its attendant risks

- Relaxation of pelvic floor and cervix results in minimal injury to the soft tissues
- Episiotomy and its repair can be carried out without delay
- The third stage is shortened, manual removal of the placenta can be accomplished without general anesthesia a blood loss is reduced.

In 1965, bupivacaine was used in instead of Lidocain because this drug had very minimal motor block effect. It causes more sensory block and its duration of action is more than Lidocain.

There is prolongation of the 2<sup>nd</sup> stage of labor as shown in various studies<sup>4,5</sup> but prolongation of second stage is not itself harmful to the fetus as long as maternal and fetal well-being preserved.

A retrospective study by Cohen *et al.*<sup>6</sup> on 4403 primipara found “no relationship between Apgar and duration of the second stage of labor.”

There is no significant prolongation of second stage of labor in the epidural group in our study.

In this study, there is no significant prolongation of second stage of labor in both epidural and control group.

In this study, it is seen that there is no increase of instrumental and operative delivery in the epidural group. This finding is supported by various studies example:

Bailey *et al.*<sup>7</sup> and Doughty<sup>8</sup> had earlier reported that the patterns of obstetric intervention both before and after the establishment of epidural services were similar.

Impey *et al.* in a retrospective analysis of 1000 pregnancies found that increased use of epidural had no effect on operative delivery rate.<sup>9</sup>

There was no serious complication and there were no side effect of drugs applied or the technique itself.

Few side effects commonly seen in epidural group are as follows:

- Urinary retention
- Pruritus
- Hypotension.

These side effects are managed easily with the encouragement of frequent voiding, antiallergic, and prophylactic hydration. Epidural analgesia does not decrease uterine flow even after temporary hypotension.

Careful patient evaluation, meticulous technique during epidural catheter placement, appropriate doses of medication and close monitoring minimize the risk of serious complication.

## CONCLUSION

In our country, pain relief during labor is still in infancy. Mass awareness and public illiteracy and shortage of trained personnel could be the main reasons. The conclusion of our study was that the epidural analgesia does not affect the duration of labor and is not associated with any adverse effect on the fetus; there was no bad effect on third stage of labor, no significant prolongation of the second stage of labor, no significant incidence of instrumental and operative delivery and it gave the excellent pain relief with full consciousness. Almost all patients viewed this experience as luxurious labor. On the whole, it can be said that in this study there was no effect seen on fetus and mother, procedure is quite safe, well tolerated and accepted by patients and it carries a special place in modern obstetrics and is going to be a very popular technique in our country as well in future.

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**How to cite this article:** Sengar S, Ohary R. Observation on Effects of Lumbar Epidural Analgesia for Painless Labor. *Int J Sci Stud* 2016;3(12):244-247.

**Source of Support:** Nil, **Conflict of Interest:** None declared.