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## Comparison of Cases With and Without Epidural Analgesia.

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### ABSTRACT

This is a cross sectional study conducted on 100 parturients to compare the outcome of labour with and without epidural analgesia. Duration of 2<sup>nd</sup> stage of labour is prolonged with epidural analgesia, Incidence of instrumental delivery is increased which is due to absence of pushing effect during 2<sup>nd</sup> stage of labour, Requirement of oxytocin for augmentation of labour was significantly increased in epidural group, women in epidural group had complete pain relief. Epidural analgesia is a safe and effective method of pain relief during labour.

**Keywords:** Epidural, Labour analgesia, Labour outcome

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## INTRODUCTION

Pregnancy and motherhood is a major milestone in the life of female, which change her position in the family and the society, giving more self confidence. Child birth is a painful process and pain relief during labour has always been associated with myths and controversies, hence providing effective and safe analgesia during labour has remained an ongoing challenge. In modern era various non-pharmacological and pharmacological methods are being practiced for labour analgesia. When neuro-axial techniques were introduced for pain relief in labour and during the last two decades there have been several advances that lead to comprehensive and evidence based management of labour pain. Modern neuro-axial labour analgesia reflects a shift in obstetrical anaesthesia, thinking away from a simple focus on pain relief towards a focus on the overall quality of analgesia.

The international association for the study of pain (IASP) declared 2007-2008 as the "Global year against pain in women- Real women, Real pain". The focus was to study both acute pain and chronic pain in women. Labour pain was found to be a good study model for treating acute pain. Increasing knowledge of the physiology and pharmacotherapy of pain and the development of obstetric anaesthesia as a sub-speciality has improved the training in obstetric anaesthesia, leading to an overall improvement in the quality of labour pain relief. In many countries today, the availability of regional analgesia for labour is considered a reflection of standard obstetric care. According to the 2001 survey the epidural acceptance is upto 60% in the major maternity centres of US. In our country, the awareness is still lacking and except few centres that run a comprehensive labour analgesia programme, the national awareness or acceptance of pain relieving options for women in labour virtually does not exist.

## MATERIALS AND METHODS

This study was conducted in sree balaji medical college and hospital on 100 parturients, based on inclusion and exclusion criteria, after obtaining permission from the ethical committee.

### Method of collection of data

- a. Study design: A single centre, cross sectional study.
- b. Place of study : Sree balaji medical college and hospital
- c. Study period : July 2012 to July 2013
- d. Sample size : Group I (Epidural analgesia) n= 50  
Group II (No analgesia) n=50

### Inclusion criteria

- Parturient mothers with
- Singleton pregnancy
  - Vertex presentation
  - Uncomplicated pregnancy
  - Willingness for epidural analgesia
  - Anaesthetist fitness for epidural analgesia

### Exclusion criteria

- Patient refusal
- Uncooperative patient
- Pregnancy with other co-morbid conditions.
- Elderly Gravida
- Grand multipara
- Untreated coagulopathy or patient on any anticoagulant therapy.
- Neurologic or neuromuscular diseases.
- Thrombocytopenia.
- Infection at the injection site.

- Refractory hypotension.
- Allergy to local anesthetics.

**Study methodology**

The study conducted after Institutional Ethical Committee approval and informed written consent on 100 full term parturient women of ASA status I and II who fits in inclusion criteria. Each participant in active labour with cervical dilatation at 4 cm will be randomized into two groups, in which group I receives epidural analgesia and groups II receives no analgesia. The study group will be preloaded with 500ml of ringer lactate solution. PR,BP,RR of the mother and FHR is monitored for both the groups. Then Epidural infusion using bupivacaine 0.125% will be given by qualified anaesthesiologists in L2-3 or L3-4 interspace. The catheter taped in place in all group I patients and monitored throughout labour. Passive descent was encouraged during second stage of labour. Third stage of labour is managed actively. Progression of labour is monitored with the help of partograph. Newborn apgar score recorded. The visual analogue pain Scale ( 0-100 mm scale : 0 = no pain, 100 = worst pain ever) was measured at the peak of contractions before and 5,10,20,and 30 minutes administration of the epidural analgesia at an hourly intervals. Our primary outcome consists of the duration of labour, Mode of delivery, requirement for oxytocin augmentation, fetal and maternal outcome

**RESULTS**

Table 1:Mean Duration of First Stage of Labour

Group	Mean (hours)	S.D.
I	6.74	1.7821
II	6.62	2.3585

Table 2:Mean duration of second stage of labour

Group	Mean (minutes)	S.D.
I	24.13	20.2559
II	20.965	17.0441

Table 3:Mean duration of third stage of labour

Group	Mean (minutes)	S.D.
I	6.48	1.4741
II	6.38	1.7010

Table 4:incidence of instrumental delivery

GROUP I	GROUP II
9/50 (14%)	5/50(10%)

Table 5:Incidenceof caesarean delivery

GROUP I	GROUP II
5/50(10%)	4/50(8%)

Table 6:Indication for cesarean delivery

	GROUP I	GROUP II
Fetal distress	3/5 (60%)	2/4 (50%)
Cervical dystocia	2/5 (40%)	2/4 (50%)

Table 7:Need for oxytocin augmentation of labour

GROUP I	GROUP II
31/50 (62%)	26/50 (52%)

Table 8:Maternal complications and side effects

Complications	Group I	Percentage	Group II	Percentage
N & V	4	8%	5	10%
PPH	2	4%	2	4%
Maternal Hypotension	0	0%	0	0%
Total	50	100	50	100

Table 9:Fetal outcome

Outcome	Group I	Group II	P value
Apgar<7 at 1 min	2	1	P=0.06589
Apgar<7 at 5 min	1	1	P=1
NICU admission	1	1	P=1

Table 10:Cause for postpartum haemorrhage

Causes	GROUP I	GROUP II
Traumatic	1/2	0
Atonic	1/2	2

## DISCUSSION

In our present study the parameters observed were the effects of epidural analgesia over duration of labour, incidence of instrumental delivery, cesarean section, need for oxytocin augmentation, complications, neonatal apgar score and NICU admissions.

### Duration of First Stage of Labour

In our study, epidural catheter was secured at greater cervical dilatation (4-5 cms). The mean duration of first stage of labour appears to be slightly higher in the study group compared to control group, but it is not statistically significant. This could be because, with the help of partogram, we have identified the parturients with poor cervical dilatation at an early stage and have augmented the labour with oxytocin.

### Duration of Second Stage of Labour

In our present study, the duration of second stage of labour was prolonged compared to the control group, which is statistically significant. This is because when women do not feel the urge, pushing is more difficult for the women. passive descent [The practice involves allowing the woman to delay pushing until she feels the urge to push or the head is visible at the vaginal introitus (delayed pushing)], increases a woman's chance of having a spontaneous vaginal birth, decreases risk of having an instrument-assisted deliveries, decreases pushing time (prolonged pushing increases the incidence of fetal and maternal acidosis). ACOG (2003) does recommend considering operative delivery when 3 hours have elapsed for a nullipara with analgesia and 2 hours for a multipara with analgesia.

### Duration of Third Stage of Labour

In present study, the duration of third stage of labour is similar to that of control group. Incidence instrumental delivery: We found that incidence of instrumental delivery was significantly increased compared to control group. Epidural analgesia may increase the risk of instrumental delivery by several mechanisms.

Reduction of serum oxytocin levels can result in a weakening of uterine activity. This may be due in part to intravenous fluid infusions being given before epidural analgesia, reducing oxytocin secretion. Although there is a significant increase in instrumental delivery, we were able to avoid some number of instrumental deliveries by following passive descent technique.

#### **Incidence of cesarean delivery**

Present study shows that epidural analgesia does not have any significant impact over incidence of cesarean delivery. And the indication for LSCS -3/5 is due to fetal distress and 2/5 is due to cervical dystocia. This was because we have identified the lag in the cervical dilatation in early stage and rectified it with oxytocin augmentation.

#### **Need for oxytocin augmentation**

In our study, the patients in the study group, required significantly more oxytocin augmentation. This is because length of labor, the primary outcome, was shortened with high dose oxytocin.

#### **Incidence of maternal hypotension**

In present study, all parturients in the study group were preloaded with 500ml of Ringer's lactate solution before establishing the block, in order to decrease the incidence of hypotension following sympathetic blockade. So none of the patients in the study group reported Hypotension.

#### **Incidence of postpartum hemorrhage**

Our study shows that there were no significant effect of epidural over PPH. In either of the groups only two of the cases had PPH. In the study group among the two women, Multiparous had Atonic PPH for which her multiparity could have contributed for the atonicity. Whereas in the other women who was a primi and had an instrumental delivery which in turn resulted in Traumatic PPH. Here Epidural analgesia contributed indirectly to the incidence postpartum haemorrhage by increasing the incidence of Instrumental delivery.

#### **Incidence of apgar < 7 In 1 minute and 5 minute**

Our study shows that Epidural has no effect over Apgar score at birth and NICU admission. The 1 NICU admission was also due to cord around the neck rather than due any other complications associated with epidural analgesia (prolonged second stage, Maternal hypotension, etc.,). [1-8].

### **CONCLUSION**

Epidural analgesia is a safe and effective method of pain relief during labour. It is a boon to the parturating mothers. However the women randomised to epidural group had impact over the labour to some extent. This is because:

- Encouraging passive descent during second stage allows more number of spontaneous vaginal birth and reduces the incidence of instrumental deliveries to some extent. This increases the duration of second stage of labour without affecting the fetal or maternal outcome.
- It requires little augmentation of labour to reduce the incidence of cesarean section due to cervical dystocia.

These benefits should be made available to the women considering pain relief in labour. The decision about whether to have an epidural should then be made in consultation between the woman and her family.

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