

# FETOMATERNAL OUTCOME OF EPIDURAL ANALGESIA DURING LABOUR

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## ABSTRACT

<i>Objective</i>	<i>To asses the fetomaternal outcome of epidural analgesia in labour.</i>
<i>Study design</i>	<i>Descriptive case series.</i>
<i>Place &amp; Duration of study</i>	<i>Department of Obstetrics and Gynaecology, Unit-II, Dow Medical College &amp; Civil Hospital, Karachi, from November 2008 to June 2009.</i>
<i>Methodology</i>	<i>Pregnant women who received epidural analgesia during labour were enrolled in the study. The inclusion criteria were primigravida patients who had gestational age of greater than 37 weeks (confirmed by ultrasound) without any risk factors, in established labour (cervical dilation &gt;3 cm with regular uterine contraction) and with head presentation.</i>
<i>Results</i>	<i>Total number of patients was seventy with the mean age of <math>27.9 \pm 1.7</math> years. Mode of delivery was spontaneous vaginal in 40 patients (57.1%), forceps delivery in 10 patients (14.3%), ventouse in 15 patients (21.4%) and caesarean section in 5 patients (7.2%). At one minute majority of the babies (n 55, 78.6%) had Apgar score of more than 7, only 5 babies (7.1%) had Apgar score less than 4, and 10 babies (14.3%) had Apgar score between 4-7. At 5 minutes majority of the babies (n 64, 91.5%) had Apgar score of more than 7, only one baby (1.44%) had Apgar score less than 4, and 5 babies (7.1%) had Apgar score between 4-7.</i>
<i>Conclusions</i>	<i>Epidural anaesthesia provided excellent pain relief in majority of the patients. It can also be associated with increase duration of second stage of labour but not associated with fetal compromise in a properly managed patient.</i>
<i>Key words</i>	<i>Epidural analgesia, Labour, Apgar score, Mode of delivery.</i>

## INTRODUCTION:

Labour and birth, although viewed as a normal physiological process, can produce significant pain, requiring appropriate pain management.<sup>1</sup> A variety of anaesthesia methods for delivery are used in different regions of the world. Epidural anaesthesia is most frequently used method of pain control. It is reliable and preferred method of anaesthesia for over 60% hospitalized women in developed countries.<sup>2</sup>

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Epidural analgesia is associated with prolonged labour, which in turn leads to assisted vaginal birth.<sup>3</sup> Some factors are associated with no pain relief or block failure with epidural such as, obesity, multiparity, cervical dilation of more than 7cm at insertion, history of previous failure of epidural anesthesia etc.<sup>4</sup> A fall in blood pressure may results from the vasodilatation caused by blocking of sympathetic tone to peripheral blood vessels. This hypotension is usually short lived, but may cause a fetal bradycardia due to redirection of maternal blood away from the uterus. The purpose of this study was to observe the effects of epidural analgesia in pain relief, mode of delivery and on the Apgar score of foetus.

## METHODOLOGY:

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**METHODOLOGY:**

This descriptive study was carried out at the Department of Obstetrics and Gynaecology, Unit-II, Dow Medical College and Civil Hospital, Karachi, from November 2008 to June 2009. The study population was pregnant women who received epidural analgesia during labour. The inclusion criteria were primigravida patients who had gestational age of greater than 37 weeks (confirmed by ultrasound) without any risk factors, in established labour (cervical dilation  $>3$  cm with regular uterine contraction) and with head presentation.

The data was collected on a predesigned proforma. The variables noted were mode of delivery, Apgar scores of the newborns at one and five minutes, and pain perceived by the study subjects. Data was analyzed with descriptive statistics using percentages, means and standard deviation.

**RESULTS:**

Total number of patients in the study was 70. Majority of the patients (n 35, 50.0%) were between 20-25 years with the mean age of  $27.9 \pm 1.7$  years. Mode of delivery in 40 patients (57.1%) was spontaneous vaginal, 10 patients (14.3%) had forceps delivery, 15 patients (21.4%) had ventouse, while five patients (7.2%) underwent caesarean section.

<b>Table I: Apgar Score at 1 Minute</b>		
Apgar Score	Number	Percentage
< 4	05	07.1
4-7	10	14.3
> 7	55	78.6
Total	70	100.0
Mean $\pm$ SD	$9.08 \pm 1.7$	

<b>Table II: Apgar Score at 5 Minute</b>		
Apgar Score	Number	Percentage
< 4	01	01.4
4-7	05	07.1
> 7	64	91.5
Total	70	100.0
Mean $\pm$ SD	$9.9 \pm 1.3$	

The mean Apgar score of babies at one minute was  $9.08 \pm 1.7$  while mean Apgar score at 5 minutes was  $9.9 \pm 1.3$  (table I and II). Regarding pain relief, most of the patients (n 40, 57.1%) had no pain, 15 patients (21.4%) had mild pain, 10 patients (14.3%) had moderate pain and five patients (7.2%) perceived severe pain.

**DISCUSSION:**

An epidural anaesthesia is a procedure used to make a woman more comfortable during labour. The term 'epidural' refers to the space of spine where local anaesthetic is delivered. It is a local anaesthetic, which freezes a person from the abdomen to the feet. The use of this technique allows the patient to be fully awake and participating in all aspects of the birthing process.<sup>5</sup> Epidural anaesthesia along with an experienced anaesthetist, a dedicated obstetrician and a trained mid-wife can convert the painful labour into a less stressful event.<sup>6</sup>

In our study, no untoward effects were noted on progress of labour in patients without oxytocin augmentation. However, attention was paid to correct inefficient uterine action early in labour with oxytocin infusion. Benefits of routine oxytocin infusion in second stage in terms of shorter duration, short period of expulsive efforts and few instrumental deliveries are well established.<sup>7</sup>

In a study by Eriksson et al there was no clear association between frequency of epidural block and caesarean section and instrumental delivery.<sup>8</sup> In present study, 57.1% patients had spontaneous vaginal delivery. Beilin et al reported 49% operative deliveries. Our results are consistent with these results.<sup>9</sup>

Epidural dose is often reduced in the second stage of labour with the intention of improving maternal expulsive efforts and decreasing the need for instrumental vaginal delivery (IVD).<sup>10</sup> The woman's need for epidural analgesia (EDA) is strongly related to birth-weight. Prolonged duration of labour and instrumental delivery, usually ascribed to EDA, may be due to large infants.<sup>11</sup>

The rate of instrumental delivery was 35.7% in this study. For malrotated head either forceps or ventouse extractions were done. Cause of malrotation seems may be due to high concentration of bupivacaine which was associated with motor block of variable degree. Fetal distress in 6 patients and ineffective maternal efforts in 4 patients were responsible for forceps deliveries. Incidence of instrument delivery could have been lower if facility for combined regimen of bupivacaine and opioid had been available.

Pain relief is an integral part of labour management. Epidural analgesia is the most effective method for the control of pain during labour but irregularity of analgesia, toxicity of local anaesthetics (LA) are the major limitations.<sup>12</sup> Epidural analgesia provides effective control of labour pain and allows emergency

caesarean section to be performed without recourse to general anesthesia.<sup>13</sup>

Obstetric analgesia is essential not only for patient's comfort but also for feto-maternal safety as pain associated physiological responses are potentially harmful for the foetus.<sup>14</sup> In present study, majority (78.5%) of patients (57.1% had no pain and 21.4% had mild pain) were satisfied with effective labour analgesia. The APGAR scores at 1 minute and 5 minutes were almost identical with a mean of  $9.08 \pm 1.7$  and  $9.9 \pm 1.3$ . The cases of foetal distress seen were due to obstetrical causes like cord around the neck or strong uterine contractions and not as a direct result of epidural like maternal hypotension etc. Epidural anaesthesia did not have any adverse effect on the foetal outcome.

Complications encountered in this study were two cases of urinary retention that developed in the postpartum period and treated by continuous catheter drainage. One of them was associated with prolonged labour which lasted for more than twelve hours, culminating in instrumental delivery, while the other patient had postpartum haemorrhage as a result of cervical tear, which was sutured and followed by vaginal packing for 24 hours.

Another complication seen was retained placenta, which occurred in two patients, necessitating manual removal. Removal was carried out under epidural, sparing the patient from general anaesthesia, which would otherwise had been necessary. The procedure was successful in both the patients and curettage was not required afterwards. In one patient there was unilateral block failure, with pain persisting on the right side. All measures were tried but the problem not solved. It probably was due to some anatomical problem like a midline septa or some adhesion.

**CONCLUSIONS:**

Epidural anaesthesia provides excellent pain relief in majority of the patients. It was associated with increased incidence of instrumental deliveries without harmful effect on mother and neonates. It was also associated with increased second stage of labour but not associated with foetal compromise.

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