

Fetomaternal Outcome and Epidural Anesthesia

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Abstract

Introduction: A treatment to make a woman more comfortable during childbirth is called an epidural anaesthesia. The area of the spine where local anaesthetic is administered is referred to as the "epidural." It is a local anaesthetic that causes a person's feet to freeze up to their abdomen. The patient can participate actively in all aspects of the childbirth process while fully awake. Both nonpharmacological and pharmacological analgesic techniques can alter the pain pathways. Assist in the early and second stages of labour with improved pain management. Promote the participation of the expectant mother during labour and delivery. This study looked at how epidural analgesia affected maternal and foetal outcomes in women who were having their induction of labour.

Material and Methods: A complete physical examination of 110 low risk primigravida patients who were at term and in labour (≥ 4 cm) was performed. Physical status ASA 1 individuals received epidural analgesia and acted as cases. Primigravida who met the inclusion criteria and reported in the delivery room or antenatal clinic were given the choice of receiving epidural analgesia. In addition to conducting a clinical examination, a thorough relevant history was acquired. Informed written agreement was obtained from the expectant mother and her family members who agreed to receive epidural analgesia. An anaesthetist placed the epidural catheter in the operating theatre. The CTG (cardiotocography) was used to record baseline variables such as heart rate, blood pressure, SpO₂, and FHR.

Results: The mean Apgar score of neonates at one minute was 9.57 ± 1.54 while mean Apgar score at 5 minutes was 10.2 ± 1.64 . In terms of pain relief, the majority of patients 71, (64.55%) reported no pain, 23 (20.91%) reported mild pain, 11 (10%) reported moderate pain, and 5 (4.55%) reported severe pain. The majority of the patients (n 68, 61.82%), with a mean age of 24.9 ± 2.1 years, were in the 20–25 age range. 59 patients (53.64%) gave birth naturally by vaginal delivery; 6 patients (5.45%) used forceps; 9 patients (8.18%) used ventouse, and 36 patients (32.73%) required a cesarean section (LSCS).

Conclusion: Thus, epidural analgesia aims to make labour a pleasant, and pain-free event and offers good pain relief for the majority of the patients. It was not linked to foetal compromise, but it was linked to an enhanced second stage of labour. Consequently, epidural analgesia is among the best and safest methods of pain management.

Keywords: labour, Epidural anaesthesia, caesarean sections, APGAR score

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Introduction

Compared to normal labour, elective labour induction is related with more pain, intrapartum interventions, and caesarean sections, necessitating the use of labour analgesia. One of the most distressing experiences a pregnant woman can have is labour pain. The "gold standard" for managing obstetric pain is still epidural labour analgesia [1]. The use of epidural analgesia is one common technique for pain management [2]. A treatment to make a woman more comfortable during childbirth is called an epidural anaesthesia. The area of the spine where local anaesthetic is administered is referred to as the "epidural." It is a local anaesthetic that causes a person's feet to freeze up to their abdomen. The patient can participate actively in all aspects of the childbirth process while fully awake [3].

First-stage labour pain travels from the uterus to the spinal cord at T11–T12 via sympathetic and A and C fibres. T10-L1 makes a fluctuating contribution. Afferent fibres from the cervix, vagina, and perineum travel through the pudendal nerve to the S2 and S4 as labour proceeds [4]. Both nonpharmacological and pharmacological analgesic techniques can alter the pain pathways. Assist in the early and second stages of labour with improved pain management. Promote the participation of the expectant mother during labour and delivery [5].

Ferguson's reflex is eliminated by epidural anaesthesia, which stops the main forces of labour in their tracks [6]. Presenting part applies pressure, starting the mother's bearing down effort with ferocious expulsive attempts. This is not accomplished solely by verbally urging someone to push harder. Epidural analgesia causes the pelvic floor

muscles to relax, which prevents the foetal head from rotating. An increase in oxygen tension for both mother and foetus as a result of epidural analgesia and the reversal of the negative ventilatory effects of pain may be advantageous, particularly when other factors that also cause foetal or maternal hypoxia are present [7,8].

This study looked at how epidural analgesia affected maternal and foetal outcomes in women who were having their induction of labour.

Aim

To compare the duration and course of the first and second stages of labour, and the need for caesarean sections in women who had epidural anaesthesia, to compare APGAR score, and foetal outcome and to research the procedure's potential risks and complications.

Material and Methods

The current prospective study was undertaken at a Dr.Ulhas Patil Medical College and hospital Jalgaon. A complete physical examination of 110 low risk primigravida patients who were at term and in labour (≥ 4 cm) was performed. Physical status ASA 1 individuals received epidural analgesia and acted as cases.

The criteria for inclusion were primi gravida women with singleton full-term pregnancies (37–41 weeks) and vertex presentation. A clinical and ultrasound assessment ruled out maternal high-risk factors. An evaluation was made of the foetal heart rate pattern (CTG) before induction, in order to determine whether labour was active. Uterine contractions and cervical dilatation, determined by frequent uterine contractions

and cervical dilatation of more than 4 centimeters, were used to establish labour.

Cephalopelvic disproportion, any medical disorder complicating pregnancy, maternal septicaemia/coagulopathy, infection at the site of catheter placement, anatomical spinal abnormality, and allergy to study drug were all excluded from the study.

Primigravida who met the inclusion criteria and reported in the delivery room or antenatal clinic were given the choice of receiving epidural analgesia. In addition to conducting a clinical examination, a thorough relevant history was acquired. Informed written agreement was obtained from the expectant mother and her family members who agreed to receive epidural analgesia. An anaesthetist placed the epidural catheter in the operating theatre. The CTG was used to record baseline variables such heart rate, blood pressure, SpO₂, and FHR.

Epidural analgesia was only used during business hours. Ranitidine was administered intravenously to the patient before the epidural catheter was placed. On the partograph, maternal pulse, blood pressure, cervical dilatation, effacement, and uterine contractions were detected. With ringer lactate solution 10 ml/kg, preloading was carried out. In the L2-L4 region, a 16 G epidural needle was inserted. After the test

dose, 1.5 percent lidocaine was injected into the area. The patient was carefully watched for any increase in pulse after receiving the medication. Patient was moved to the delivery room after the epidural catheter had been placed, and blood pressure, pulse, and cervical dilation were checked every half-hour and two hours, respectively. Until the baby was delivered, top-up dosages were administered every 60–90 min following the confirmation of two segments of sensory level regression or at the patient's request.

Data was gathered using a pre-made proforma. The delivery method, neonates' Apgar ratings at one and five minutes, and study participants' perceptions of pain were all taken into consideration. Using percentages, means, and standard deviation, descriptive statistics were used to examine the data.

Results

A total of 110 low-risk primigravida were included in the study and were offered epidural anaesthesia. The majority of the patients (n 68, 61.82%), with a mean age of 24.9 ± 2.1 years, were in the 20–25 age range. 59 patients (53.64%) gave birth naturally by vaginal delivery; 6 patients (5.45%) used forceps; 9 patients (8.18%) used ventouse, and 36 patients (32.73%) required a cesarean section (LSCS).

Table 1: APGAR score after 1 minute

APGAR score	Number (%)
<4	7 (6.36%)
4-7	20 (18.18%)
>7	83 (75.45%)
Total Mean \pm SD	9.57 \pm 1.54

Table 2: APGAR score after 5 minute

APGAR score	Number (%)
<4	2 (1.82%)
4-7	12 (10.91%)
>7	96 (87.27%)
Total Mean \pm SD	10.2 \pm 1.64

The mean Apgar score of neonates at one minute was 9.57 ± 1.54 while mean Apgar score at 5 minutes was 10.2 ± 1.64 .

Table 3: Pain Relief

Variable	Number	Percentage
No pain	71	64.55%
Mild pain	23	20.91%
Moderate pain	11	10.00%
Severe pain	5	4.55%

In terms of pain relief, the majority of patients 71, (64.55%) reported no pain, 23 (20.91%) reported mild pain, 11 (10%) reported moderate pain, and 5 (4.55%) reported severe pain.

Discussion

PaCO₂ stays the same as a result of the pain alleviation provided by epidural analgesia, which also inhibits hyperventilation during contractions and hypoventilation during uterine relaxation. It suppresses the release of catecholamines, beta-endorphins, Adrenocorticotrophic hormones, and cortisol by blocking nociceptive input and sympathetic efferents [9]. It reduces uterine hyperactivity and between hypoactivity, transforming irregular uterine contractions into regular ones. Additionally, it enhances placental perfusion. Additionally, by blocking the nociceptive receptor pathway, it reduces the rise in blood pressure and cardiac output in expectant women. Epidural analgesia increases gastric motility by inhibiting its reflex inhibition. Better foetal advantages A lower APGAR score indicates less metabolic acidosis. if necessary, offers anaesthesia for instrumental vaginal delivery and episiotomy. Effective analgesia during labour lessens catecholamines' harmful effects on uterine blood flow in both the mother and the foetus. Epidural anaesthesia has the drawback that it takes longer to insert than spinal anaesthesia and that it takes 10-15 minutes longer to establish analgesia. If left untreated, hypotension, a typical physiological alteration linked to epidural

analgesia, can cause major morbidity or even death. Preganglionic sympathetic blocking causes hypotension, which lowers cardiac output and increases systemic vascular resistance.

In the current study, 59 patients (53.64%) gave birth vaginally. 49 percent of vaginal deliveries were Our findings is in accordance with Beilin *et al* [10]. In our study, patients who did not get oxytocin augmentation experienced no unfavourable consequences on the progression of labour. However, oxytocin infusion was used to improve ineffective uterine function early in labour. Routine oxytocin infusion in the second stage has been shown to have advantages in terms of shorter length, shorter expulsive efforts, and fewer instrumental deliveries [11].

In our study 36 patients (32.73%) underwent Caesarian section. 30 of them involved general anaesthesia, and the other 6 required an epidural top-up injection. No patient underwent emergency LSCS right away after receiving epidural anaesthesia since no one had abnormal CTG findings right away after the operation. In a study by Anwar *et al.* [12] majority of the LSCS were due to fetal distress and also he observed higher rate of forceps delivery as compared to our s

study. In the present study satisfaction was seen in most of the patients with regard to pain relief and it was comparable with the study by Desai *et al.* [13] The WHO recommendations state unequivocally that providing EA is indicated even by the delivery mother's simple request.

The mean Apgar score of neonates at one minute was 9.57 ± 1.54 while mean Apgar score at 5 minutes was 10.2 ± 1.64 . Obstetrical issues caused the cases of foetal distress that were observed not as a direct effect of the epidural anaesthesia but likely due to nuchal cord or intense uterine contractions. The findings of this study were consistent with those of earlier studies conducted by Paplakar *et al* [7] and Anwar *et al* [12] observed in their study that babies delivered by mothers under epidural anaesthesia had considerably lower APGAR scores at 1 minute (7 score).

Conclusion

Thus, epidural analgesia aims to make labour a pleasant, opulent, and pain-free event and offers good pain relief for the majority of the patients. It was not linked to foetal compromise, but it was linked to an enhanced second stage of labour. Mother didn't appear to have any significant complications. Consequently, epidural analgesia is among the best and safest methods of pain management.

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