Content available at: https://www.ipinnovative.com/open-access-journals

Indian Journal of Obstetrics and Gynecology Research

Journal homepage: www.ijogr.org

Original Research Article

Epidural analgesia-efficacy and feto-maternal outcome: A cross sectional study

Mane Swapnil[1], **Anup Kharde**[2,*], **Phulambrikar Rutuja**[3]

[1]*Dr. Mane Medical Foundation and Research Center & SAIDHAM Cancer Hospital, Rahuri, Maharashtra, India*
[2]*Dept. of Community Medicine, Dr. Balasaheb Vikhe Patil Rural Medical College, PIMS-DU, Loni, Maharashtra, India*

ARTICLE INFO

Article history:
Received 06-02-2022
Accepted 18-02-2022
Available online 20-05-2022

Keywords:
Epidural analgesia
Efficacy
Apgar score
Mode of delivery
Labour

ABSTRACT

Background: The delivery of an alert and active baby into the arms of a conscious and pain free mother is one of the most exciting and rewarding experiences in medicine**.** Epidural analgesia is considered one of the most effective methods for pain relief during labor, and the intrapartum use of epidural analgesia has substantially increased over the previous two decades.
Objective: To study efficacy of epidural analgesia in labour and its feto-maternal outcome.
Materials and Methods: Present descriptive observational study was conducted at a tertiary care hospital. The study was conducted over the period one year from 2019 to 2020. Pregnant women reporting for delivery at study setting were the study population. Healthy pregnant primigravidae or multigravida women who had gestational age of greater than 37 weeks without any risk factors, in true labour with vertex presentation of fetus were included after obtaining an informed consent.
Results: Total number of patients were 50 with mean age 23.57 ± 2.73. Mode of delivery in 70% (35) parturient was spontaneous while 14% (07) and 6% (03) had forceps and vacuum delivery respectively. The remaining 10% (5) underwent lower section caesarian section (LSCS). The mean Apgar score of babies at one minute and at 5 minutes was 9.0±1.5and 9.6±1.4 respectively. Majority of the mothers were relieved from pain after epidural analgesia.
Conclusion: Present study concludes that Epidural analgesia provides good pain relief in majority of the patients without any evidence of foeto-maternal compromise.

1. Introduction

Unpleasant, but the most useful sensation that developed as a protective mechanism during early evolution of human being is pain. Experiencing labor pain and giving birth is a normal physiological process.[1] Labor pain is symptom of labor that indicates an expecting mother to seek timely help for delivery. Normal labour and birth, although viewed as physiological process, can produce significant pain, requiring appropriate pain management.[2] As labour progresses, the pain becomes increasingly severe and is often exacerbated by anxiety, fear, and ignorance. The effects of labor pain are mainly hypercarbia, loss of consciousness and decreased uterine blood flow.[3] Failure to relieve maternal pain leads to a series of metabolic changes in the mother including increased levels of catecholamines that can adversely affect the foetus.[4]

Adequate analgesia during labor is beneficial to the mother, having a positive effect on the mother as well as on condition of the unborn child during and after delivery, so intrapartum analgesia is considered an essential component of optimal obstetric care. Systemic medication, inhalation analgesia and regional analgesia techniques are the most commonly used methods for relief of labor pain[5] but they

* *Corresponding author*.
E-mail address: dranup.kharde@gmail.com (A. Kharde).

https://doi.org/10.18231/j.ijogr.2022.036

are not that efficient. Ideal labor analgesia is considered to be one which provides adequate pain relief, has no side effects on either labor progression or mode of delivery, does not cause any neonatal complications and provides a pleasant and memorable experience to the mother.[6]

Epidural analgesia (EA) is a central nerve blockade technique which involves the injection of a local anesthetic into the lower region of the spine, thus blocking the painful impulses that are generated from the nerves of the contracting uterus during labor.[7] EA has been used for many years as one of the effective methods of pain relief, however despite its common use in modern obstetric practice there is still great concern about possible side effects associated with EA.[8,9] With this background present study conducted to study efficacy of epidural analgesia and feto-maternal outcome.

2. Materials and Methods

This descriptive cross-sectional study was carried out at a tertiary care hospital in western Maharashtra. The study was conducted over a period one year from 2019 to 2020. The study was done in accordance with the ethical standards framed out in the declaration of Helsinki declaration. Pregnant women reporting for delivery at the study setting were the study population. Healthy pregnant primigravidae or multigravida women from 36 to 41 weeks of gestation who had undergone minimum three antenatal checkups in our hospital were eligible to participate in the study. Participants having previous history of lower section caesarian section (LSCS), hysterotomy, antepartum hemorrhage, multiple pregnancy, systemic diseases, known allergy and breech presentation were excluded from the study. A convenient sample of fifty successive patients, eligible as per the inclusion and exclusion criteria, during the study period were included. The aim, objectives and procedure involved in study was explain to them in local language (Marathi). Written informed consent was obtained from the patients and their immediate relatives before recruiting them in the study. All participants were in the active phase of labor i.e. having cervical dilation > 3cm and well effaced, 03 sustained contraction per 10 minutes, each contraction lasting for 35-45 seconds, well engaged fetal head in primigravidae and no cephalon-pelvic disproportion (CPD) in multigravida. Ultrasonography (USG) was done to confirm eligibility of the participants. Analgesia, 15 cc of 0.1% bupivacaine and 15mcg of phentanyl injected in epidural space to achieve cephalad sensory T 10 level. The data was collected on a predesigned, pre-tested proforma. Information on mode of delivery, Apgar scores of the newborns at one and five minutes, and pain perceived by the study participants on visual analogue scale (VAS) was noted. Data was analyzed with descriptive statistics using percentages, means and standard deviation.

3. Observation and Results

Total 50 healthy parturient were included as per selection criteria. Age wise characteristics of participants depicted in Table 1. The mean age of the study participants was 23.57 ± 2.73 years [Range 18–30 years] and mean gestational age of the participants was 38.4 weeks. According to the pre pregnancy body mass index (BMI), 36% (18) participants were under weighting (≤ 18.50 kg/m^2) while 12% (06) were overweight (>25.0 kg/m^2). The rest i.e. 52% had a normal BMI (18.50-24.99 kg/m^2). About 10% (05) of the participants were addicted to tobacco (mishri) consumption. Out of 50 patients, 74% (37) and 26% (13) were primigravida and multigravida respectively.

Table 1: Age distribution of the participants (n=50)

S. No.	Age Groups (Yrs.)	Frequency (%)
1.	≤ 20 Yrs.	07 (14%)
2.	21 Yrs. – 25 Yrs.	34 (68%)
3.	26 Yrs. – 30 Yrs.	09 (18%)
	Total	50 (100%)

Mode of delivery of 70% (35) parturient was spontaneous while 14% (07) and 06% (03) had forceps and vacuum delivery respectively remaining. Out of these three patients underwent instrumental delivery due to prolonged labour, three due to maternal exhaustion, two due to malrotation of head and two due to suspected fetal compromise. Around 10% (5) underwent lower section caesarian section (LSCS) (Figure 1). Signs of fetal distress were seen in one patient, cord prolapse in two patients and abruption in two patients due to which emergency LSCS was performed. Incidence of bearing down among total series of vaginal delivery was 06% (03) and found to be higher in vaginal delivery (02).

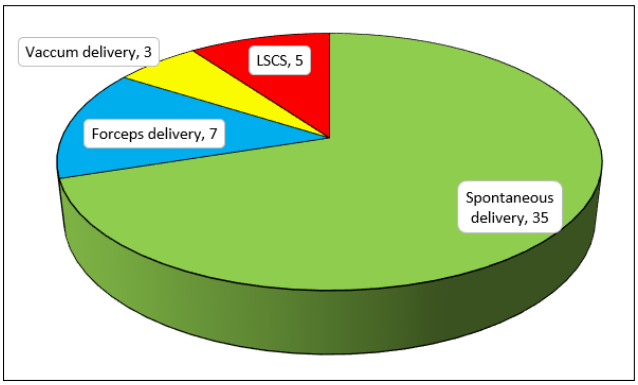

Fig. 1: Mode of delivery

Before epidural analgesia, the pain score of all 50 patients on visual analogue scale (VAS) was in between 8-10 and after 1 hour of administering EA, the pain score reduced to 0-3 of 49 (98%) of patients. Out of 45 patients delivered vaginally, 4% (02) required local anesthesia while

episiotomy. Mean duration of labor of Stage I, Stage II and Stage III was 188 minutes, 33 minutes and 09 minutes respectively. Out of 50 parturient 10% (05) had complication viz catheter displacement (01), hypotension (02), headache (01) & backache (01).

The mean Apgar score of babies at 01 minute and 05 minutes shown in Table 2. At 01 and 05 minute about 80% and 94% of babies score was 07 and above respectively. Three newborns had an Apgar score of < 3 at one-minute. These newborns were depressed due to obstetrical causes such as cord prolapse and strong uterine contractions. However, the newborns were revived with immediate newborn care. The mean Apgar score of babies at one-minute was 9.0±1.5 while mean Apgar score at 5-minutes was 9.6±1.4. Foeto-maternal outcome was uneventful in all deliveries, only 03% of newborns required NICU admission for short duration of time. Post-partum assessment of patient satisfaction was done on second day after delivery. Out of all participants 90% (45) responded as fully satisfied with the method used to conduct delivery in present study.

Table 2: Apgar score at 01 and 05 minute (n=50)

Apgar score	@ 01 minute (%)	@ 05 minute (%)
≤ 03	03 (06%)	01 (02%)
04-06	07 (14%)	02 (04%)
≥ 07	40 (80%)	47 (94%)
Total	50 (100%)	50 (110%)
Mean ± SD	9.0±1.5	9.6±1.4

4. Discussion

Total 50 patients participated in present study. Majority (68%) of patients were in the age group of 21-25 yrs. and mean age of participants was 23.57 ± 2.73 yrs. In the study conducted by Halvadia et al.[2] also majority of the patients (n = 40, 50.0%) belonged to similar age group (20-25yrs) with the mean age (21.9±1.7) of the mother somewhat higher as compared to our study.

In present study mode of delivery of 70% (35) parturient was spontaneous while 14% (07) and 06% (03) had forceps and vacuum delivery respectively while remaining 10% (5) underwent (emergency) LSCS. The study by Halvadia et al.[2] reported that around 57.7% had spontaneous vaginal delivery, 4 patients (5%) had forceps delivery, 14 patients (17.5%) had ventouse delivery, while 16 patients (20%) underwent caesarean section.

In the present study, before epidural analgesia, all 50 patients reported sever type of pain on VAS but after 1 hour of EA around 98% of mother's intensity of pain reduced. Halvadia et al.[2] reported pain relief in most of the patients (n = 50, 62.5%) however, 16 patients (20%) had mild pain, 9 patients (11.25%) had moderate pain and five patients (6.25%) perceived severe pain after administering EA.

In our study, Apgar score at 01 and 05 minute of about 80% and 94% babies was 07 and above respectively. The mean Apgar score of babies at one-minute was 9.0±1.5 while mean Apgar score at 5 minutes was 9.6±1.4. Whereas, in the study by Halvadia et al,[2] Apgar score at 01 and 05 minute of around 78.75% and 92.50% babies was 7 and above respectively. Their study reported that the mean Apgar score of babies at one-minute was 9.08±1.7 while mean Apgar score at 5 minutes was .9.9±1.3 respectively. Apgar scores were found to be somewhat similar in both the studies.

5. Conclusion

Present study concludes that epidural analgesia provides good pain relief in majority of the patients and has confirmed many of the impressions gathered during recent past. More extensive studies with larger sample size are needed for comprehensive assessment of epidural analgesia.

6. Source of Funding

The study received no funding.

7. Conflict of Interest

The authors declare no conflict of interest.

References

1. Reynolds F. Labour analgesia and the baby: Good news is no news. *Int J Obstet Anesth*. 2011;20(1):38–50.
2. Halvadia SH, Halvadia HB, Joshi RM, Upadhyaya DP. A study of feto-maternal outcome of epidural analgesia during labor. *Natl J Med Rese*. 2013;3(2):184–6.
3. Boudou M, Teissedre F, Walburg V, Chabrol H. Association between the intensity of childbirth pain and the intensity of postpartum blues. *Encephale*. 2007;33(5):805–10.
4. Reena, Bandyopadhyay KH, Afzal M, Mishra AK, Paul A. Labor epidural analgesia: past, present and future. *Indian J Pain*. 2014;28(2):71–81.
5. Adilakshmi V, Padmaja R. A study of progress of labor and feto-maternal outcome with epidural labor analgesia. *IAIM*. 2019;6(8):125–30.
6. Mehra R, Baweja N, Mitra S. Outcome of labor with epidural analgesia in primigravida at term. *Int J Reprod Contracept Obstet Gynecol*. 2019;8(3):1055–61.
7. Antonakou A, Papoutsis D. The effect of epidural analgesia on the delivery outcome of induced labor: A retrospective case series. *Obstet Gynecol Int*. 2016;2016:5740534. doi:10.1155/2016/5740534.
8. Hincz P, Podciechowski L, Grzesiak M, Horzelski W, Wilczyflski J. Epidural analgesia during labor; a retrospective cohort study on its effects on labor, delivery and neonatal outcome. *Ginekol Pol*. 2014;85(12):923–8.
9. Mehra R, Baweja N, Mitra S. Outcome of labor with epidural analgesia in primigravida at term. *Int J Reprod Contracept Obstet Gynecol*. 2019;8(3):1055–61.

Author biography

Mane Swapnil, President https://orcid.org/0000-0002-6542-933X

Anup Kharde, Associate Professor https://orcid.org/0000-0002-3073-4529

Phulambrikar Rutuja, Private Practitioner https://orcid.org/0000-0002-7697-3680

Cite this article: Swapnil M, Kharde A, Rutuja P. Epidural analgesia-efficacy and feto-maternal outcome: A cross sectional study. *Indian J Obstet Gynecol Res* 2022;9(2):185-188.