



Effect of Intrapartum Epidural Analgesia on duration of labour & mode of delivery: A randomized control, prospective study

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ABSTRACT

Objective- The purpose of this prospective, randomized observational study is to determine the effects of epidural labour analgesia with regard to duration of labour, mode of delivery and maternal satisfaction. **Method-** Study included 60 full term parturient women at term pregnancy in active labour who were further allocated in two groups, one received Epidural analgesia & other without any analgesia (Control Group) and effect on labour were observed. **Result-** The mean duration of 1st stage and 2nd stage of labour was increased in epidural group when compared with control group having a p-value of 0.003 and 0.0001 respectively but prolongation did not reach to the statistically significant level. The rate of instrumental delivery is increased 13.3% in Epidural group and 3.3% in Control group. Excellent maternal satisfaction was observed.

KEYWORDS : Epidural Analgesia, Pain Rating Scale.

Introduction

"The delivery of the infant into the arms of a conscious and pain free mother is one of the most exciting and rewarding moments in medicine".

-Moir DD

The modern era of childbirth analgesia began in 1847 when Dr J Y Simpson administered ether to a woman in childbirth, and later in the same year, chloroform. Queen Victoria was given chloroform by John Snow (1853) for the birth of her eighth child Prince Leopold and this did much to popularize the use of pain relief in labour.

Advances in the field of labour analgesia have tread a long journey from the days of ether and chloroform in 1847 to the present day practice of comprehensive program of labour pain management using evidence-based medicine. Safe fetal outcome without any adverse maternal effect is the chief goal of pain relief during labour and lumbar epidural analgesia is the most efficient and widely employed modality for this.

The purpose of this prospective, randomized observational study is to determine the effects of epidural labour analgesia with regard to duration of labour, mode of delivery and maternal satisfaction.

Materials and Methods

The present study was carried out prospectively in obs and gynae department of MLB Medical College Jhansi. Study included 60 full term parturient women in term pregnancy in active labour who were further allocated in two groups, one received Epidural labour analgesia & other without any analgesia (Control Group) and effect on labour was observed.

Sample size: Group I (Epidural analgesia) n=30
Group II (Non Epidural analgesia) n=30

Inclusion criteria: Women who give written informed consent, Healthy women at term gestation in active phase of labour, Singleton pregnancy with vertex presentation, Women in active phase of labour with cervical dilatation 4 cm in Primigravida and more than 3-4 cm in Multigravida, Age 18-35 years, Hb% \geq 9gm/dl

Exclusion criteria: Patient refusal, Pregnancy with other co-morbid conditions, Medical disorders complicating pregnancy like diabetes, hypertensive disorders of pregnancy etc., 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 was conducted after Institutional Ethical Committee approval and informed written consent on 60 full term parturient women of ASA status I and II who fits in inclusion criteria. Each participant in active labour with cervical dilation 3-5cm was randomized into two groups, in which group I receives epidural analgesia and group II no analgesia. Both the groups will be preloaded with 500ml of ringer lactate solution and monitoring with NIBP, and Pulse oximetry will be done. Baseline pain was assessed by Verbal Rating Scale (VRS; 0 = no pain, 10 = worst pain imaginable). Then Epidural block using initial epidural injection of 15 ml of ropivacaine 0.1% with fentanyl 2g/ml was given by qualified anesthesiologists in L 2-4 interspace. The catheter taped in place in all group 1 patients and monitored throughout labour. Partograph was used as assessment tool to monitor the duration and progress of labour.

Statistical analysis: Study included both qualitative and quantitative results. statistical analytical methods was done using students unpaired two tailed t test, p value calculated and inference were obtained.

Observations & Results

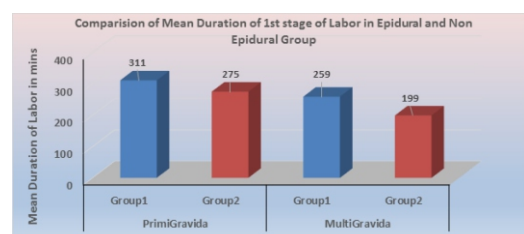


Fig 1-Effect on duration of 1st stage of labor

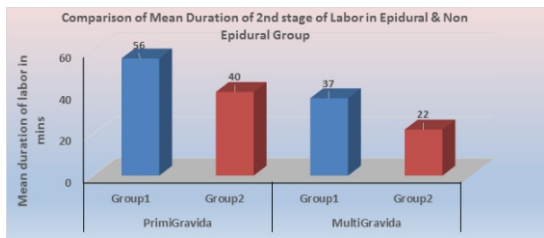


Fig 2-Effect on duration of 2nd stage of labor

The p-value of duration of 1st stage of labour in Primigravida and MultiGravida is 0.00314 & 0 respectively. The result is significant as $p < .05$.

The p-value of duration of 2nd stage of labour in Primigravida and MultiGravida is 0.00001 & 0.000033 respectively. The result is significant as $p < .05$.

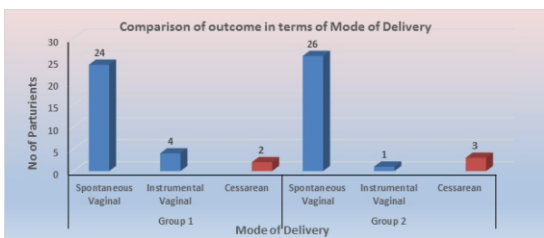


Fig 3 - Comparison of outcome in terms of mode of delivery

33% parturients in Epidural group has instrumental vaginal delivery when compared with Non Epidural group where instrumental delivery rate is 3.3%. The p-value is 0.0033 and result is statistically significant. The cesarean section rate was comparable in both the group. P-value 1, result is not significant.

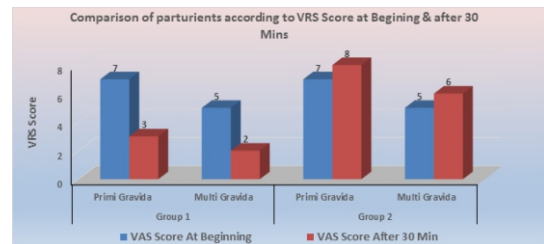


Fig 4 - Comparison of parturients according to VRS Score at Beginning & after 30 Mins

Maternal satisfaction was excellent in the group 1 receiving epidural labour analgesia.

Discussion

Obstetricians and anesthetists have always feared the incidence of instrumental deliveries in women receiving labour analgesia could be higher than in those who do not receive it.

Meta-analysis by Segal and colleagues that included nine impact studies involving more than 37 000 parturients. There was no increase in the rate of Caesarean delivery during a period of increased usage of epidural analgesia compared with a historical control period, similar to our study.

In our study, out of 30 parturients 28 delivered vaginally and 2 by cesarean section in Epidural group. And out of 30 Parturients of Control group 27 delivered vaginally and 3 by cesarean section. The t-value is 0. The p-value is 1. The result is not significant as p value is not less than 0.05.

In our study, 13.3% had instrumental vaginal delivery as compared

to Control group where rate of instrumental delivery was 3.3% which is similar to current Cochrane Database Review.

Sharma 2002 study having 226 parturients with mean duration of 302 mins in Epidural group and 261 mins in Control group showing significant prolongation of 1st stage of labour which is similar to our study.

In our study, mean duration of 1st stage of labour is 311.3 min in primigravida and 258.8 mins in multigravida in Epidural group while 273.8 mins in primigravida and 198.8 min in multigravida in Control group with a p value of 0.00314 in Primigravida and 0.00001 in multigravida showing statistically significant prolongation of 1st stage of labour.

In our study, mean duration of 2nd stage of labour is 56.5 min in primigravida and 37.7 mins in multigravida in Epidural group while 40.2 mins in primigravida and 22.1 min in multigravida in Control group having a p value of 0.00001 in Primigravida and 0.000033in multigravida showing statistically significant prolongation.

Conclusions

Epidural analgesia is the most reliable mean of effective analgesia and gives complete freedom from pain of labour. Epidural analgesia during labour using Bupivacaine 0.0625% with Fentanyl is associated with increase in duration of labour but did not reach statistical significance. The rate of caesarean delivery is comparable in Epidural and a control group not receiving any analgesia but the rate of instrumental delivery is more in Epidural group. Maternal satisfaction was excellent in epidural group.

References

1. Anim-Somuah M, Smyth RMD, Howell CJ. Epidural versus non-epidural or no analgesia in labour. The Cochrane library, 2010
2. Obstetric anesthesia, In Cunningham, Leveno, Bloom, Hauth, Rouse, Spong, william's obstetrics, 23rd edition, philadelphia, mcgrawhill, 2010
3. Alexander JM, Sharma SK, McIntire DD, et al. Epidural analgesia lengthens the friedman active phase of labour. Obstet gynocol. 2002
4. Srivastava U, Gupta A, Saxena S, Kumar A, Singh S, Saraswt N, Mishra R.A et al. Patient Controlled Epidural Analgesia during Labour: Effect of Addition of Background Infusion on Quality of Analgesia & Maternal Satisfaction. Clinical investigations. 2009;
5. Shiv K. Sharma, James M. Alexander, Gary Messick, Steven L. Bloom, Donald D. McIntire, et al. A Randomized Trial of Epidural Analgesia versus Intravenous Meperidine Analgesia during Labour in Nulliparous Women. Anesthesiology, 2002
6. Lieberman, E. Epidemiology of epidural analgesia and cesarean delivery. Clinical Obstetrics and Gynecology. 2004