Review Article

Impact of Epidural Analgesia on labour: A Review

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Abstract

Pain relief in labour has always been surrounded with myths and controversies. Hence, providing effective and safe analgesia during labour has remained an ongoing challenge. Relief of labour pain has always been a point of debate in the society ever since the use of ether by J.Y. Simpson in 1846 to regional analgesia in 20th century. Impact of labour analgesia on the progress and mode of delivery has become a crucial subject of debate among obstetric and anesthesia care providers during the last few decades. A large number of unrandomized and retrospective studies have been done to assess the effects of epidural and parenteral analgesia on duration and mode of deliveries.

Epidural is a safe method to address the fear of pain associated with labour hence it should be explained to every primigravida during her antenatal period and she should be allowed to make knowledgeable choice.

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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" [1] For most women labour causes severe pain, similar in degree to that caused by complex regional pain syndromes or the amputation of a finger [2]. The ACOG and the American Society of Anesthesiologists (ASA) state, "There is no other circumstance where it is considered acceptable for an individual to experience untreated severe pain, amenable to safe intervention, while under a physician's care. In the absence of a medical contraindication, maternal request is a sufficient medical indication for pain relief during labour."[3]

Pain relief in labour has always been surrounded with myths and controversies. Hence, providing effective and safe analgesia during labour has remained an ongoing challenge. Use of labour analgesia gained wide spread popularity when the three famous women, Fanny Longfellow wife of famous American poet Henry Wadsworth Longfellow (1847), Emma Darwin wife of Charles Darwin the eminent Naturalist, and Queen Victoria wife of Prince Albert (1853) not only accepted but strongly endorsed the use of analgesia during birth process. [4]

Mechanism of labour pain:

In the first stage of labour, pain is caused by distension of the cervix and lower uterine segment in combination with isometric contraction of the uterus. Pain in the second stage of labour is dominated by tissue damage in the pelvis and perineum. The impulses thus generated are conducted into the spinal cord by afferent C fibers from the cervix and lower uterine segment, and by afferent A delta and C fibers from the pelvis, pelvic organs and perineum. Labour pain is referred to the dermatomes T11 and T12 in the early stage of labour. It spreads to the neighboring dermatomes T10 and L1 and eventually involves the dermatomes S2-4 during the second stage of labour and delivery. Pain-induced sympathetic activation will increase cardiac output in a way that may be deleterious in parturients with heart disease, eclampsia and anemia. The amount of beta-endorphin released from the pituitary and placenta into the blood is relatively high but obviously not sufficient to depress pain effectively. Adequate nerve block and epidural anesthesia, as well as measures to relieve anxiety, will help markedly to reduce the risks associated with labour pain. [5]

DISCUSSION

Relief of labour pain has always been a point of debate in the society ever since the use of ether by J.Y. Simpson in 1846 to regional analgesia in 20th century [4]. Impact of labour analgesia on the progress and mode of delivery has become a crucial subject of debate among obstetric and anesthesia care providers during the last few decades. A large number of unrandomized and retrospective studies have been done to assess the effects of epidural and parenteral analgesia on duration and mode of deliveries.

In 1993, **F. Carli et al** studied on 1250 primiparous women, 568 (45%) received epidural analgesia (bupivacaine 0.25%) during labour, and the other 682 (55%) received either Entonox, pethidine or no analgesia. The spontaneous vaginal delivery rate in the epidural group was 67%, lower than that in the non-epidural group (87%). All instrumental delivery rates were higher in the epidural group. However, the rotational forceps rate in the epidural group (2.5%) was only marginally higher than in the non-epidural group (0.9%). This preliminary study suggests that a high rate of spontaneous vaginal delivery can be achieved with epidural analgesia when labour is actively managed. [6]

In 1993, a randomized controlled prospective trial was done by **Thorp JA et al** on 93 women in St. Lukes Hospital, Kansas city to evaluate the effect of epidural analgesia on nulliparous labour and delivery. When compared with the group receiving narcotic analgesia (n= 45), the group receiving epidural analgesia (n=48) had a significant prolongation in the first and second stages of labour, an increased requirement for oxytocin augmentation, and a significant slowing in the rate of cervical dilatation. The study concluded the epidural analgesia resulted in significant prolongation in 1st and 2nd stage of labour and an increase in frequency of caesarean section rate. [7]

In 1994, a randomized controlled study was done by **Chestnut DH et al** on 344 healthy nulliparous women, who requested epidural analgesia during spontaneous labour at at-least 36 weeks' gestation to determine whether early administration of epidural analgesia affects obstetrics outcome in nulliparous women who are in spontaneous labour. Each patient was randomized to receive either early or late epidural analgesia. Patients in the early group immediately received epidural bupivacaine analgesia. Patients in the late group received 10 mg nalbuphine intravenously. Late-group patients did not receive epidural analgesia until they achieved a cervical dilation of at least 5 cm or until at least 1 hr had elapsed after a second dose of nalbuphine. The study concluded that early administration of epidural analgesia did not prolong labour, increase the incidence of oxytocin augmentation, or increase the incidence of operative delivery, when compared with intravenous nalbuphine followed by late administration of epidural analgesia, in

nulliparous women who were in spontaneous labour at term. [8]

In 1995, a study was done by **Stienstra et al** on 76 full term parturients (39 received ropivacaine and 37 received bupivacaine) and concluded that ropivacaine 0.25% and bupivacaine 0.25% are equally effective for epidural pain relief during labour. Ropivacaine may have an advantage over bupivacaine regarding neurobehavioral performance during the first few hours after delivery. Based on its lower cardio- and neurotoxic potential, ropivacaine may be preferable to bupivacaine for epidural administration. [9]

In 1997, a randomized controlled study was done by **Bofill et al** on 100 women to examine the effect of epidural analgesia on Dystocia-related caesarean delivery in actively labouring nulliparous women. Active labour was confirmed in nulliparous women by uterine contractions, cervical dilatation of 4 cm, effacement of 80%, and fetopelvic engagement. No difference in the rate of caesarean delivery for dystocia was noted between the groups. No significant differences were noted in the lengths of the first or second stages of labour or in any other time variable. Women with epidural analgesia underwent operative vaginal delivery more frequently. The study concluded that with strict criteria for the diagnosis of labour and with use of a rigid protocol for labour management, there was no increase in dystocia-related caesarean delivery with epidural analgesia. [10]

In 1998, a meta-analysis on effect of epidural vs parenteral opioid analgesia on the progress of labour done by **Halpern et al**. They included all studies that randomized patients to epidural vs parenteral opioid labour analgesia. Two authors independently extracted data from 10 trials enrolling 2369 patients. The risk of caesarean delivery did not differ between patients receiving epidural (8.2%) vs parenteral opioid (5.6%) analgesia. Epidural patients had longer first and second labour stages. While epidural patients were more likely to have instrumented delivery, they were no more likely to have instrumented delivery for dystocia. Women receiving epidural analgesia had lower pain scores during the first and second stages of labour. The study concluded that epidural labour analgesia is not associated with increased rates of instrumented vaginal delivery for dystocia or caesarean delivery. After epidural analgesia, neonates were less likely to have low 5-minute APGAR scores or to need naloxone. [11]

In 2000, a study was done by **Zimmer et al** on 847 parturients (384 nulliparous and 463 multiparous) to examine the influence of epidural analgesia on labour and delivery in nulliparous and multiparous women. In this study epidural analgesia was administered in 233 nulliparous and 141 multiparous women. A stepwise logistic regression analysis revealed that epidural analgesia independently affected the rate of non-spontaneous delivery and the duration of the second stage of labour in nulliparous and multiparous women. The study concluded that epidural analgesia was associated with prolongation of labour and increase in non-spontaneous delivery. [12]

In 2000, **Loughnan et al** compared the incidence of Caesarean delivery in nulliparous women randomized to receive epidural analgesia with those randomized to intramuscular (i.m.) pethidine. On admission to the delivery suite in established labour, 802 nulliparae had already agreed to be randomized with respect to their first analgesia. One hundred and eighty-eight women required either no analgesia or 50% nitrous oxide in oxygen (Entonox) only. Of the remaining 614 women, 310 were randomly allocated to receive i.m. pethidine up to 300 mg and 304 to receive epidural bupivacaine. Labour management was standardized according to the criteria for active management of labour. The intention-to-treat analysis showed similar Caesarean section rates in those randomized to epidural (12%) or pethidine analgesia (13%). The normal vaginal delivery rates were similar (epidural, 59%; pethidine, 61%). [13]

In 2001, **Howell et al** studied the backache at three and twelve months after delivery, instrumental delivery rates and maternal opinion of pain relief in labour in 369 primigravida women (epidural n=184, non-epidural n=185). Epidural analgesia consisted of 0.25% bupivacaine (10 ml), followed with top-ups of 5-10 ml 0.25% bupivacaine, as required. In the non-epidural group, intramuscular pethidine 50-100mg was administered and could be repeated according to standard midwifery practice. No significant differences were found in the reported incidence of backache between the groups at three months or at 12 months. The incidence of instrumental delivery was somewhat higher in the epidural group [30% vs 19%]. This study provided no evidence to support the suggestion of a direct association between the use of epidural anesthesia in labour and the incidence of long term backache. [14]

In 2002, **Barbara et al** studied the effects of epidural analgesia on labour, maternal and neonatal outcome and concluded that patients given epidural reported less pain and were more satisfied with their pain relief. It did not affect fetal oxygenation, neonatal pH, or 5 minute APGAR score. Epidural analgesia does not affect the caesarean section rate, instrumental delivery for dystocia or new onset long term back pain. It was associated with longer second stage of labour but there was no affect on first stage of labour. [15]

In 2004, a meta-analysis was performed by **Sharma et al** on 2,703 nulliparous women, who were randomized to either epidural analgesia or intravenous opioids for pain relief during labour from five trials to evaluate the effects of epidural analgesia during labour on caesarean delivery rate. A total of 1,339 nulliparous women were randomized to receive epidural analgesia, and 1,364 women were randomized to receive intravenous meperidine analgesia. Epidural analgesia was initiated with either epidural bupivacaine or intrathecal sufentanil. There was no difference in the rate of caesarean deliveries between the two analgesia groups (epidural analgesia, 10.5% vs. intravenous meperidine analgesia, 10.3%). Significantly more women randomized to epidural analgesia had forceps deliveries compared to meperidine analgesia (13% vs. 7%). Epidural women had longer first and second stages of labour. Women who received epidural analgesia reported lower pain scores during labour and delivery compared to women who received intravenous meperidine analgesia. The study concluded that epidural women had longer first and second stages of labour but it did not increase the number of caesarean deliveries. [16]

In 2004, **Liu et al** compared the effects of low concentration epidural infusions of bupivacaine with parenteral opioid analgesia on rates of caesarean section and instrumental vaginal delivery in 2962 nulliparous women. Epidural analgesia does not seem to be associated with an increased risk of caesarean section but may be associated with an increased risk of instrumental vaginal delivery. Separate analyses of caesarean section rates for dystocia and for fetal distress also showed no significant differences. Epidural analgesia was associated with a longer second stage of labour. This systematic review concluded that Epidural analgesia using low concentration infusions of bupivacaine is unlikely to increase the risk of caesarean section but may increase the risk of instrumental vaginal delivery. Although women receiving epidural analgesia had a longer second stage of labour, they had better pain relief. [17]

In 2004, a study was done by **Guisasola J et al** to compared the relationship between epidural analgesia and obstetric variables and the course of labour in 4364 women. All the women were offered obstetric epidural analgesia based on 0.0625% bupivacaine plus 2 µg/mL of fentanyl. The study concluded that the duration of dilatation and expulsion were longer among women receiving epidural analgesia. [18]

In 2005, a study was done by **Sienko et al** to assess the effect of epidural analgesia on the course delivery and perinatal outcome among 1334 women of which 53% women were with epidural and 47% women were without epidural analgesia. The incidence of fetal distress during second stage of labour was significantly higher in the epidural group (12.69 vs. 6.99%). Caesarean sections rate was similar in epidural and non-epidural group. Among vaginal deliveries duration of the first and second stage of labour was longer in epidural group. There were no statistically significant differences in the rates of instrumental vaginal deliveries, 1 and 5-minute APGAR scores, length of third stage of labour and perinatal blood loss in patients with and without epidural analgesia.[19]

In 2005, a meta analysis on epidural analgesia and the progress of labour has been published by **Halpern et al**. The effect of epidural analgesia has been studied in many series. In general there appears to be no clear effect on the duration of 1st stage. The second stage is more consistently prolonged in both primiparous and multiparous women. [20]

In 2005, a cochrane review of all randomized controlled trial was done by **Souman et al** comparing the effects of all modalities of epidural analgesia (including combined-spinal-epidural) on the mother and the baby, with non-epidural or no pain relief during labour. Total of 21 studies involving 6664 women were included. However, epidural analgesia was associated with an increased risk of instrumental vaginal birth. There was no evidence of a significant difference in the risk of caesarean delivery, long-term backache, low neonatal APGAR scores at five minutes, and maternal satisfaction with pain relief. Nine trials, involving 2328 women, reported length of first stage of labour. There was no evidence of a significant difference in this outcome. Eleven trials involving 3580 women reported length of second stage of labour. Women with epidural analgesia had a statistically significant longer second stage of labour. The conclusion was that epidural analgesia appears to be more effective in reducing pain during labour. However, women who used this form of pain relief were at increased risk of instrumental delivery and prolonged second stage of labour. [21]

In 2005, **Wu et al** studied the effects of ropivacaine on the duration of labour and mode of delivery in the primigravida using patient-controlled epidural analgesia (PCEA) in 190 healthy, full-term, and single-fetus parturient primigravidas who received PCEA with 0.1% ropivacaine + fentanyl (1 microg/ml) were in the epidural analgesia group. Another 222 primigravidas who did not receive PCEA were in the control group. Those in the epidural analgesia group experienced a significantly longer first stage, longer second stage and longer full duration of delivery than those in the control one. The rate of using pitocin in the epidural analgesia group

(30.2%) was significantly higher than that in the control group (4.1%). The caesarean section rate in epidural analgesia group (20.0%) was lower than that in the control one (28.4%); while the rate of instrumental delivery in the epidural analgesia group (20.0%) was significantly higher than that in the control one (6.3%). Epidural ropivacaine labour analgesia lengthens the duration of labour and increases the rate of instrumental delivery, but it has no significant negative effects on the neonates. [22]

In 2005, **Zhang et al** investigated the influence of combined spinal-epidural analgesia (CSEA) and epidural analgesia (EA) and patient-controlled epidural analgesia (PCEA) on labour progress. The partograms of 722 healthy vaginal delivery nulliparous were retrospectively analyzed in Department of Obstetric and Gynecology, First Hospital of Peking University. All subjects were divided among three groups: CSEA group (259 cases) receiving CSEA + PCEA, EA group (215 cases) receiving EA + PCEA and control group (248 cases) without any analgesia method. The duration of active phase in the first stage and the second stage in the CSEA group and in the EA group were significantly longer than that of control group. No significant difference was found in the three groups in the duration of the third stage. The average speed of cervical dilatation in CSEA and EA groups (1.5 cm and 1.4 cm) was significantly slower than that of the control (1.8 cm) in the active phase. The study concluded that CSEA + PCEA or EA + PCEA during labour might slow down the progress of the active phase and lead to a prolonged labour in the end. [23]

In 2005, **Wong et al** conducted a randomized trial of 750 nulliparous women at term who were in spontaneous labour or had spontaneous rupture of the membranes and who had a cervical dilatation of less than 4.0 cm. Women were randomly assigned to receive intrathecal fentanyl or systemic hydromorphone at the first request for analgesia. Epidural analgesia was initiated in the intrathecal group at the second request for analgesia and in the systemic group at a cervical dilatation of 4.0 cm or greater or at the third request for analgesia. The rate of caesarean delivery was not significantly different between the groups (P=0.31). The median time from the initiation of analgesia to complete dilatation was significantly shorter after intrathecal analgesia than after systemic analgesia (295 minutes vs. 385 minutes, P<0.001), as was the time to vaginal delivery (398 minutes vs. 479 minutes, P<0.001). The study concluded that Neuraxial analgesia in early labour did not increase the rate of caesarean delivery, and it provided better analgesia and resulted in a shorter duration of labour than systemic analgesia. [24]

In 2006, **Shahram studied on** 395 healthy, nulliparous women, at term, presented in spontaneous labour with a singleton vertex presentation. These patients were randomized to receive analgesia either, epidural with bolus doses of 1% lidocaine or intravenous, with meperidine 25 to 50 mg when their cervix was dilated to 4 centimeters. 197 women were randomized to the epidural group. 198 women were randomized to the single-dose intravenous meperidine group. There was no statistical difference in rates of vacuum-assisted delivery rate. Caesarean deliveries, as a consequence of fetal bradycardia or dystocia, did not differ significantly between the groups. Differences in the duration of the active-first and the second stages of labour were not statistically significant. The number of newborns with 1-min and 5-min Apgar scores less than 7, did not differ significantly between both analgesia groups. The study concluded that Epidural analgesia with 1% lidocaine does not prolong the active-first and second stages of labour and does not increase vacuum-assisted or caesarean delivery rate. [25]

In 2006, **Ohel et al** conducted a randomized trial in which 449 at term nulliparous women in early labour, at less than 3 cm of cervical dilatation, were assigned to either immediate initiation of epidural analgesia at first request (221 women), or delay of epidural until the cervix dilated to at least 4 cm (228 women). The obstetric management, apart from the timing of initiation of epidural analgesia, was similar in the 2 groups. They used 0.2 % ropivacaine and 50 mg fentanyl for epidural analgesia. The mean duration from the time of randomization to full dilatation was shorter in the early epidural group (5.9 hours) compared with the late group (6.6 hours). No significant difference was found in the duration of the second stage. The rates of caesarean section were not different significantly. Similarly, no differences were found in the rates of caesarean section performed for the indication of failure to progress, either in the first or second stages of labour. The study concluded that in nulliparous labours the administration of epidural analgesia in very early labour, following the first request for analgesia, compared with delaying it until cervical dilatation is at least 4 cm, does not result in an increased rate of caesarean section, operative vaginal deliveries, or any other adverse effect, while being associated with a significantly shorter duration of the first stage of labour. Furthermore, it is the preferred choice of the labouring women themselves. [26]

In 2007, a study was done by **Liang et al** on 583 women in Chang Gung Memorial Hospital, Taiwan to evaluate the effect of epidural analgesia and timing of administration on labour course and postpartum stress urinary incontinence (SUI). They compared various obstetric parameters and SUI, at puerperium and 3 months post-

partum, among patients who had epidural and non-epidural analgesia, and among those who had early (cervical dilatation < 3 cm) and late (cervical dilatation > or = 3 cm) epidural analgesia. When compared with the non-epidural analgesia group (n = 319), the group that received epidural analgesia (n = 264) had significant prolongation of the first and second stages of labour, and higher likelihood for instrumental and caesarean delivery but similar incidence of severe vaginal laceration and postpartum SUI. This study concluded that epidural analgesia is associated with an increased risk of prolonged labour and instrumental and caesarean delivery but is not related to increase postpartum SUI. Regarding the impact of the timing of epidural analgesia given in the labour course, the first stage of labour appeared to last longer when analgesia was administered early rather than late. [27]

In 2007, **Hegazy** did a retrospective review of 861 patients were admitted for vaginal delivery. Patients were divided into Nulliparous (334 patients) and Multiparous (527 patients) populations. Each population was then divided into two groups, epidural and non-epidural group. Epidural analgesia was initiated by a bolus of bupivacaine 0.25% plus fentanyl, followed by bupivacaine 0.125% plus fentanyl. Non-epidural analgesia was initiated by one or mixture of I.M meperidine, promethazine hydrochloride, or entonox inhalers. In the Nulliparous population a total of 57 patients requested epidural, while 277 patients received other analgesic methods. There was no difference in the rate of caesarean section deliveries between the two analgesia groups. In the Multiparous population, a total of 49 patients requested epidural analgesia, while 478 patients received other analgesic methods. There was no difference in the rate of caesarean section deliveries between the two analgesia groups. Significantly, more patients in the epidural group had forceps or vacuum assisted deliveries compared to the non-epidural group. This was evident in both the Nulliparous population and in the Multiparous population. [28]

In 2009, a study was done by **Khurshid et al** on 156 women to evaluate the influence of epidural analgesia on frequency of instrumental delivery and duration of labour. Out of 156 parturient included, 78 patients had epidural analgesia for labour and 78 did not. Epidural was administered with cervical dilatation less than 5 cm or when the contractions became regular. In 78 patients undergoing epidural analgesia, mean duration of second stage of labour was 22 minutes. This study concluded that epidural analgesia is associated with increased risk of instrumental vaginal delivery & prolonged second stage of labour. [29]

In 2009, a five-year randomized controlled trial done by **Wang et al**, in which 12,793 nulliparous patients requesting neuraxial analgesia were enrolled and randomized to an early epidural (cervical dilation at least 1.0 cm) or delayed epidural (cervical dilation at least 4.0 cm) group. A 15-ml epidural analgesic mixture consisting of 0.125% (1.25 mg/ml) ropivacaine plus 0.3µg/ml sufentanil was given in a single bolus, followed by patient-controlled pump with a 10-ml bolus without background infusion. The duration of labour from analgesia request to vaginal delivery was equal in both groups. No statistically significant difference in the rate of Caesarean section was observed between the two groups on the intention-to-treat analysis. This study concluded that epidural analgesia in the latent phase of labour at cervical dilation of 1.0 cm or more does not prolong the progression of labour and does not increase the rate of Caesarean in nulliparous women compared with the delayed analgesia at the cervical dilation of 4.0 cm or more. [30]

In 2009, a prospective study was done by **Fyneface-Ogan et al** on fifty multiparous women in labour with cervical dilatation of less than 4 cm. Finding of their study was that the durations of the first and second stages of labour were significantly shorter in the epidural group as compared to those in the non-epidural (systemic opioid/sedative) group. With the concentration of local anesthetic used, there was no statistically significant difference in the caesarean section rates between the epidural labour analgesia group and the parenteral opioid/sedative group. [31]

In 2010, a descriptive study was carried out by **Anwer et al**, on 70 pregnant women who received epidural analgesia during labour. The inclusion criteria were primigravida patients who had gestational age of greater than 37 weeks without any risk factors, in established labour (cervical dilation >3 cm) and with head presentation. The study concluded that epidural anesthesia 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 properly managed patients. [32]

In 2011, **Wassen et al** reviewed of the literature regarding the relation between the timing of epidural analgesia and the rate of caesarean or instrumental vaginal deliveries. The search retrieved 20 relevant articles, of which six fulfilled the selection criteria of inclusion. These six studies reported on 15,399 nulliparous women in spontaneous or induced labour with a request for analgesia. This review shows no increased pooled risk of caesarean or instrumental vaginal deliveries in nulliparous women at 36 weeks or more of gestation receiving early epidural anesthesia at <4 cm dilatation in comparison with epi-

dural anesthesia given to women admitted when at least 4 cm dilated. This systematic review showed no increased risk of caesarean delivery or instrumental vaginal delivery for women receiving early epidural analgesia at cervical dilatation of 3 cm or less in comparison with late epidural analgesia. [33]

In 2011, **Anim-Somuah et al** assessed the effects of all modalities of epidural analgesia (including combined-spinal-epidural) on the mother and the baby, when compared with non-epidural or no pain relief during labour. They included 38 studies involving 9658 women. Epidural analgesia was associated with an increased risk of assisted vaginal birth, maternal hypotension, motor-blockade, maternal fever, urinary retention, longer second stage of labour, oxytocin administration and an increased risk of caesarean section for fetal distress. There was no evidence of a significant difference in the risk of caesarean section overall, long-term backache, They concluded that Epidural analgesia appears to be effective in reducing pain during labour. However, women who use this form of pain relief are at increased risk of having an instrumental delivery. Epidural analgesia had no statistically significant impact on the risk of caesarean section, maternal satisfaction with pain relief and long-term backache and did not appear to have an immediate effect on neonatal status as determined by Apgar scores. [34]

In 2011, **Kothari et al** reviewed the impact of obstetric analgesia (regional vs parenteral) on progress and outcome of labour. This review concluded that due to the availability of safer and more effective new drugs and techniques, the incidence of prolonged labour and caesarean or instrumentally assisted vaginal delivery has decreased significantly. [35]

In 2012, a comparative study done by **Mousa et al** to evaluate the effect of epidural analgesia on labour duration compared with parturients devoid of analgesia while previous studies have assessed epidural analgesia vs systemic opioids rather than to parturients receiving no analgesia. Parturients who request epidural analgesia were allocated in the epidural group, whereas those not enthusiastic to labour analgesia were allocated in the control group. Epidural analgesia was provided with 20 mL bolus 0.5% epidural lidocaine plus fentanyl and maintained at 10 mL for 1 h. Administration of epidural analgesia with 0.5% lidocaine with fentanyl 2 μg/mL during labour did not significantly prolong the first or second stages of labour. The rate of vaginal, instrumental, vacuum-assisted, or caesarean deliveries were not statistically different between the two groups. [36]

In study by **Agrawal et al**, conduct on 60 nulliparous, the duration of first stage of labour was shorted in epidural group (mean duration= 4.95 hours) as compared to non-epidural group (mean duration= 5.82 hours) which was statistically significant (P value 0.032). The second stage was found to be prolonged in epidural group in our study (mean duration= 27.16 minutes) as compared to control group (mean duration= 21.20 minutes) with a statistically significant (P value 0.035). There was no statistically significant difference in the rate of caesarean section deliveries between the two groups (10% patients in the epidural group versus 6.66% in the control group). Although, the number of instrumental deliveries looked to be greater in epidural group (20% patients in the epidural group versus 6.66% in the control group) but was not statistically significant. [37]

CONCLUSION

Due to the availability of safer and more effective new drugs and techniques, the incidence of caesarean or instrumentally assisted vaginal delivery has decreased significantly.

The fear of pain, increase in the education and awareness combined with a small family norm are the factors which encourage many young women to demand caesarean section. If the fear associated with the pain of labour can be addressed and the advantages of vaginal birth are explained to these women many unnecessary caesareans can be avoided.

Epidural is a safe method to address the fear of pain associated with labour hence it should be explained to every primigravida during her antenatal period and she should be allowed to make knowledgeable choice.

RECOMMANDATION

Epidural analgesia is safe for both mother and her baby. There has been an ever increasing trend for caesarean section and caesareans on demand. This is because young women are afraid of the pain of labour and prefer the surgical delivery. If this fear of pain is addressed and the patient is educated with regard to epidural analgesia the caesareans on demand will go down.

- Option of epidural analgesia should be offered to all patients where the facilities exist.
- All booked antenatal patients should be educated regarding the procedure during the third trimester of pregnancy.
- The possible complications should be told to the patients. The pros and cons of the procedure must be told to the patient prior to labour pains.
- The financial implications should also be known to the patients.

- The choice to take or not take this analgesia should rest with the patients.

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