

Does labour epidural slow the progress of labour and lead to complications? Obstetricians' perception working in private and public sector teaching hospitals in a developing country

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ABSTRACT

Background and Aims: Obstetricians play a major role in the decision making for provision of analgesia for the woman in labour. As epidural analgesia (EA) is the most preferred technique, it is important to know obstetricians' perception regarding its effect on progress of labour and associated complications. **Methods:** The 6 months cross-sectional study included 114 obstetricians from teaching hospitals. After informed consent, obstetricians were asked to fill a predesigned questionnaire containing 13 close ended questions regarding their perception on the effect of EA on progress of labour, EA complications and whether they would recommend EA to their patients or not. Other variables included age, gender, training in EA, practice type and hospital settings (private or public sector). **Results:** Majority of the obstetricians had the perception of EA prolonging the first stage (89.5%) and second stage (98.2%) of labour, increasing the rate of caesarean section (87.7%), instrumental delivery (58.8%) and increasing the incidence of backache (85.5%). None of the obstetricians received any formal training in EA. Majority (84.2%) were not sure if they would recommend EA to their patients. When these responses were compared between public and private sector, a statistically higher percentage ($P < 0.001$) of public sector obstetricians had negative perception of EA. **Conclusion:** Perception of obstetrician regarding EA is contrary to the current evidence. There is a need to introduce formal curriculum on EA in obstetric training program and conduct regular refresher courses.

Key words: Caesarean section, complication, epidural, labour

Access this article online

Website: www.ijaweb.org

DOI: 10.4103/0019-5049.171559

Quick response code



INTRODUCTION

The use of epidural analgesia (EA) in labour is widespread in modern labour ward practice, and its benefits in terms of pain relief are well-recognized.^[1] It not only provides significantly effective analgesia as compared to parenteral opioid, but has also been shown to decrease the duration of active first and second stages of labour.^[2,3]

Obstetricians play an important role in decisions pertaining to patient's management including those related to labour analgesia; therefore it is important to know how the obstetrician perceived the effects of EA on the progress of labour, outcomes and side effects. A previous study from Australia on this subject showed that 29% of obstetricians believed that EA prolongs the

first stage of labour and 21% believed that it shortens the duration.^[4] Another study, conducted in India, showed that 30% of obstetricians had the perception of labour epidural (LE) prolonging the duration of labour without specifying which stage of labour.^[5] One survey conducted in Turkish hospitals to assess the

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How to cite this article: Sohaib M, Ismail S. Does labour epidural slow the progress of labour and lead to complications? Obstetricians' perception working in private and public sector teaching hospitals in a developing country. *Indian J Anaesth* 2015;59:779-84.

knowledge and attitude of obstetricians regarding EA showed inadequate knowledge of obstetricians in the subject.^[5]

Different studies have quoted higher rate of labour EA in developed countries.^[6-10] There is a paucity of data on obstetricians' perception regarding LE from developing countries. In order to improve labour EA services, there is a need for a better understanding of obstetricians' perception towards LE. As only when the perceptions are understood, appropriate measures can be taken to improve collaboration between anesthesiologist, obstetricians and patients.

Therefore, the primary objective of this study was to find out the perception of obstetricians working in teaching hospitals regarding the effect of LE on the duration of labour, side effects, incidence of caesarean section and instrumental vaginal delivery. Obstetricians were also asked as what method in their opinion is the most effective for labour pain relief and if they would like to recommend LE to their patients or not.

METHODS

After approval from Hospital Ethics Committee and written informed consent, this cross-sectional survey was conducted from December 2012 to May 2013 on 114 obstetricians working in teaching hospitals of one of the states of our country. We included consultant obstetricians or senior postgraduate trainees in their final year of gynaecology and obstetrics training program. Participants not willing to participate were excluded from the study. Four teaching hospitals were included in the study; two from public and two from private sector. Permissions were obtained from the heads of the department of obstetrics and gynecology unit of each of the participating hospital. Participants who fulfilled the inclusion criteria were approached and explained the purpose of the study. They were assured about the confidentiality of their personnel details and the name of their institution. Participants willing to take part in the study were enrolled after written informed consent. The data collection tool was a predesigned questionnaire having 13 close-ended questions. The enrolled participants were handed over the predesigned questionnaire and were collected after 15–20 min by the primary investigator. The questionnaire was divided into three sections. The first section was designed to collect information pertaining to gender, years of experience, practice type

(credential consultants or final year trainee), source of knowledge regarding LE, whether they have received formal education or not and hospital settings (private or public sector).

The second section included the perception of LE on the progress of labour; whether in the opinion of participating obstetrician, LE increases the duration of different stages of labour, increase the incidence of cesarean section or operative vaginal delivery. The options included “yes,” “no” and “do not know.”

The third section included the perception of obstetricians regarding the side effects of LE; they were asked if they think that LE is associated with long-term low back ache and whether LE has any effect on neonatal Apgar score.

The fourth and the final section of the questionnaire included the perception of obstetricians as to which method of labour pain relief is safest in their opinion for primigravida and multigravida. The options included parenteral opioids, entonox and epidural analgesia. The final question was whether they would recommend LE or not. The options included “yes,” “no” or “don't know.”

One hundred and fourteen participants were included in this study which was based on a previous study of Pirbudak *et al.*^[6,11] in which 60% obstetrician's knowledge regarding LE was reported, so the perception of obstetrician's regarding LE were estimated within 9% level of precision with 95% confidence interval (CI) using World Health Organization sample size calculator. All statistical analysis was performed using Statistical Packages for Social Science version 19 (SPSS Inc., Chicago, IL, USA). Frequency and percentage were computed for categorical variables and analyzed by Chi-square and fisher exact test while mean and standard deviation were estimated for numeric observation. $P \leq 0.05$ was considered as significant.

RESULTS

The demographics of the study population, included gender, practice type, hospital settings and years of experience are shown in Table 1. None of the participating obstetricians received formal training of EA as a part of their postgraduate curriculum but around 50% of the respondents had received information on EA from lectures (62.5%) and from seminars/conferences (37.5%).

Perception of obstetricians regarding the effect of EA on the progress of labour is shown in Table 2, where majority of the obstetricians had the perception of LE prolonging the first and second stages of labour, increasing the rate of cesarean section and instrumental delivery. When these responses were compared between public and private sector obstetricians, a statistically higher percentage ($P < 0.001$) of public sector obstetricians had a perception of LE increasing the duration of labour, rate of cesarean and instrumental vaginal delivery [Table 3]. On comparing according to the practice type (postgraduate trainee vs. practicing consultants), a statistical significant difference was

Parameter	Numbers
Gender; <i>n</i> (%)	
Male	3 (2.6)
Female	111 (97.4)
Practice type; <i>n</i> (%)	
Postgraduate	49 (43)
Consultant	65 (65)
Hospital setting; <i>n</i> (%)	
Government	73 (64)
Private	41 (36)
Year of experience; mean±SD (range)	
Postgraduate	3.98±0.14 (3-4)
Consultant	10.55±3.91 (5-25)

Results are presented as *n* (%) and mean±SD. SD – Standard deviation

Questions	Response (%)
Epidural prolongs the first stage of labour?	
Yes	102 (89.5)
No	12 (10.5)
Epidural prolongs the second stage of labour?	
Yes	112 (98.2)
No	2 (1.8)
Epidural increases the incidence of cesarean section	
Yes	100 (87.7)
No	12 (10.5)
Don't know	2 (1.8)
Epidural increases the incidence of operative vaginal delivery	
Yes	67 (58.8)
No	17 (14.9)
Don't know	30 (26.3)
Epidural associated with low back pain	
Yes	97 (85.1)
No	17 (14.9)
Epidural having effect on neonatal Apgar score	
Yes	22 (19.3)
No	70 (61.4)
Don't know	22 (19.3)

Results are presented as *n* (%)

found only in the perception of EA increasing the incidence of assisted vaginal delivery, which was more common among consultants compared to postgraduate trainee [Table 4].

The results pertaining to the perceptions of obstetricians regarding the side effects of EA are shown in Table 2; these results indicate that majority (85.1%, 97/144) of the obstetricians associated EA with long-term backache with almost all obstetricians from public sector hospital (97.3%) having this perception, compared to 63.4% from private sector hospitals ($P < 0.001$) [Table 3]. However, no significant difference was observed when the perception regarding the association of EA with backache was compared between postgraduate trainees and practicing specialists [Table 4].

A higher percentage of obstetricians from public sector hospitals had a perception of LE as having

Questions	Government (<i>n</i> =73) (%)	Private (<i>n</i> =41) (%)	<i>P</i>
Epidural prolongs the first stage of labour?			
Yes	71 (97.3)	31 (75.6)	0.0005*
No	2 (2.7)	10 (24.4)	
Epidural prolongs the second stage of labour?			
Yes	73 (100)	39 (95.1)	0.12
No	0 (0)	2 (4.9)	
Epidural increases the incidence of caesarean section			
Yes	69 (94.5)	31 (75.6)	0.001*
No	2 (2.7)	10 (2.4)	
Don't know	2 (2.7)	0 (0)	
Epidural increases the incidence of operative vaginal delivery			
Yes	45 (61.6)	22 (53.7)	0.004*
No	5 (6.8)	12 (29.3)	
Don't know	23 (31.5)	7 (17.1)	
Epidural associated with low back pain			
Yes	71 (97.3)	26 (63.4)	0.0005*
No	2 (2.7)	15 (36.6)	
Epidural having effect on neonatal Apgar score			
Yes	16 (21.9)	6 (14.6)	0.45
No	45 (61.6)	25 (61)	
Don't know	12 (16.4)	10 (24.4)	
Would you like to recommend epidural analgesia for your patient?			
Yes	5 (6.8)	13 (31.7)	0.0005*
No	0 (0)	0 (0)	
Don't know	68 (93.2)	28 (68.3)	

*Significant. Results are presented as *n* (%). Chi-square test used

negative effect on the Apgar score of newborn as compared to those from private sector hospitals; however, no statically significant difference was observed ($P = 0.45$) [Table 3]. When the perception of postgraduate trainee and consultants were compared, a statistically significant association was observed as higher percentage of postgraduate trainees considered LE having negative effect on Apgar score. In addition 42.9% (21/49) of postgraduate trainee did not know if LE has any effect on Apgar score [Table 4].

Regarding the perception of obstetricians regarding the most effective method for labour pain relief, majority (61.1%, 88/144) voted for entonox compared to epidural (22.8%, 26/144). A statistically significant difference ($P < 0.005$) was observed in the perception between public and private sector hospital groups as only 9.6% (7/73) from public sector hospitals, compared to 46.3% (19/41) from private sector hospitals, considered EA as

the most effective method of pain relief during labour. In addition, a statistically significant difference ($P < 0.001$) was observed in the perception between postgraduate trainees as 8.2% (4/49) compared to 33.8% (23/65) consultants considered LE as the most effective method for relief of labour pains.

Last question was meant to enquire whether they would recommend epidural to their patients; 15.8% (18/144) said yes, 0% said no but 84.2% (96/144) said that they do not know. A statistically significant difference ($P < 0.001$) was observed between public and private sector hospitals regarding this aspect. Among the public sector specialists, 6.8% (5/73) obstetricians would recommend LE and 93.2% (68/73) did not know if they would recommend it or not. In comparison 9% (13/144) from private sectors would recommend and 68.3% (28/41) did not know if they would recommend LE or not. Further, a statistically significant difference was observed between postgraduate trainees and consultants where 6.1% (3/49) of postgraduate trainees compared to 23.1% (15/65) of consultants would recommend LE to their patients. However, more or less equal number of postgraduate trainees as compared to consultants were not sure whether they would recommend LE or not (93.9%, 46/49 vs. 76.9%, 50/65).

Table 4: Perception of obstetric consultants versus postgraduate trainees regarding the effect of labour epidural on progress of labour

Questions	Postgraduate (n=49) (%)	Consultant (n=65) (%)	P
Epidural prolongs the first stage of labour?			
Yes	46 (93.9)	56 (86.2)	0.18
No	3 (6.1)	9 (13.8)	
Epidural prolongs the second stage of labour?			
Yes	49 (100)	63 (96.9)	0.51
No	0 (0)	2 (3.1)	
Epidural increases the incidence of cesarean section			
Yes	45 (91.8)	55 (84.5)	0.045*
No	2 (4.1)	10 (15.4)	
Don't know	2 (4.1)	0 (0)	
Epidural increases the incidence of operative vaginal delivery			
Yes	18 (36.7)	49 (75.4)	0.0005*
No	3 (6.1)	14 (21.5)	
Don't know	28 (57.1)	2 (3.1)	
Epidural associated with low back pain			
Yes	46 (93.9)	51 (78.5)	0.02*
No	3 (6.1)	14 (21.5)	
Epidural having effect on neonatal Apgar score			
Yes	15 (30.6)	7 (10.8)	0.0005*
No	13 (26.5)	57 (87.7)	
Don't know	21 (42.9)	1 (1.5)	
Would you like to recommend epidural analgesia for your patient			
Yes	3 (6.1)	15 (23.1)	0.0005*
No	0 (0)	0 (0)	
Don't know	46 (93.9)	50 (76.9)	

*Significant. Results are presented as n (%). Chi-square test used

DISCUSSION

The present study indicates that majority of the obstetricians have a perception of EA prolonging the first and second stages of labour, which is similar to results of previous studies.^[4,5] One study from a developed country stated that 77% obstetricians believed EA prolongs the second stage of labour, though opinion varied regarding the effect on the duration of first stage of labour.^[4] Investigators from a study conducted in a developing country gave a figure of 30% obstetricians having a perception of EA prolonging the duration of labour without specifying which stage of labour.^[5] The perception of obstetricians from this study and the previous studies is however partly contrary to what is stated in the literature, as the Cochrane review of 2005 showed no difference in the duration of first stage of labour and prolongation of the second stage of labour (by 15 min) with no adverse outcomes in patients receiving EA.^[6] Even the initial studies on these subjects have shown epidural factors (e.g., epidural technique and composition of epidural solution) as well as patient and obstetric factors influencing the duration of labour rather than only EA.^[12,13]

It was observed that majority of obstetricians associated the use of EA for labour with the increase in rate of cesarean section, which is again not supported by evidence. One meta-analysis included 8417 subjects from 27 randomized controlled trials, showed the risk ratio of neuraxial compared with nonneuraxial analgesia of 1.10 (95% CI = 0.97–1.25).^[14] Another meta-analysis using data from 9 impact studies concluded that the rate of cesarean delivery and operative vaginal delivery did not differ between periods of low and high EA.^[15]

Majority of the obstetricians (58.8%) had a perception that EA increased the incidence of instrumental vaginal delivery. Previous studies have shown that 35% to 51% of the obstetricians had this perception.^[4,5] As reported in one study, using lower doses of drugs and patient-controlled EA has actually led to a high spontaneous rate of vaginal delivery (78–95%) and also a decrease in incidence of instrumental (14%) and caesarean delivery (2%).^[16] Similar finding was observed in the more recent Cochrane review of 2011, indicating an increased risk of assisted vaginal birth (relative risk = 1.42, 95% CI = 1.28–1.57, 23 trials, 7935 women) and longer second stage of labour with EA (mean difference = 13.66 min, 95% CI = 6.67–20.66, 13 trials, 4233 women).^[14] Previous studies have shown that the rate of instrumental vaginal delivery is dependent on obstetrician practices and the dose and concentration of epidural solution used for EA.^[17-19]

In this survey, majority (87%) of the participating obstetricians considered EA as a cause of low backache despite the fact that no association is seen between EA and backache.^[12] Taneja *et al.*, in their study found 40% of obstetricians not being able to comment on the association of maternal backache with use of LE due to their insufficient knowledge on this subject.^[5] Furthermore, a higher percentage of obstetricians from public sector hospital compared to private sector hospital had a perception of LE as having negative effect on the Apgar score of newborn, however, no statically significant difference was observed. No consistent differences have been identified in neonatal arterial pH or Apgar scores in babies who were born to mothers with epidural.^[20]

When the obstetricians were asked if they would like to recommend LE to their patients, none of them said no but majority (80%) were not sure if they would recommend it or not. This shows that participants are not fully informed about EA and are unsure about the

probable effects of EA on labour to recommend it to their patients. One of the audits conducted in India showed that 13% of obstetricians did not wish to give EA to their patients, which seems to be more related to their inadequate knowledge rather than their attitude to potentially neglect labour analgesia.^[5]

The deficiency of knowledge can possibly be related to lack of training opportunities in obstetric analgesia as shown in previous literature.^[4,5] The findings of this study are consistent with previous studies as none of the participating obstetricians had any structured training in labour analgesia and all the knowledge they had gained was from lectures in conferences and seminars.^[4,5]

In addition, another significant finding of the study was the significant difference in the perception of obstetricians working in the public and private sector hospitals. Most of the obstetric interventions are done in private sector hospitals as evident by one of the studies done in New South Wales which clearly showed that low-risk primiparous women giving birth in private hospitals, compared to a public hospitals, had higher rates of epidural (53% vs. 32%).^[21] In developing countries patient population presenting in public sector hospitals are from low socioeconomic class and education.^[22] These patients have lack of awareness of EA which may contribute to the decreased demand of labour analgesia.^[10] In addition cost is another issue in the public sector hospital as Tracy and Tracy^[23] indicated that epidural is associated with a sharp increase in cost of 32% for primipara low risk women and up to 36% for multipara low risk women.

One critique on this study can be the lack of objective assessment of obstetrician knowledge, but the objective of the study was to see the overall perceptions of the obstetricians working in the university and tertiary care hospitals and see their perception in the light of existing evidence.

CONCLUSION

Our study revealed that the knowledge of obstetricians regarding EA is not completely in accordance with available evidence world wide and the reason seems to be the lack of teaching and training opportunities in developing countries. Therefore, in order to establish successful obstetric analgesia services, there is a need to introduce obstetric analgesia module in obstetric

teaching curriculum and provide refresher courses for all the practicing obstetricians.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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