

A Survey of the Knowledge Attitude and Practice Regarding Epidural Labor Analgesia among Anaesthesiologists in Government Hospitals of Eastern India

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Abstract:

Background and Aims:

Epidural labor analgesia has become a milestone in obstetric analgesia with anaesthesiologists worldwide using it on parturients for painless and safe childbirth. This survey aims to look at the anaesthesiologists' knowledge on epidural labor analgesia, their attitude towards its routine use against their ages, gender and years of experience, how often they practiced it and whether their personal experience influenced their practice.

Material and Methods:

The study is designed as a cross-sectional descriptive survey. Sixty-two anaesthesiologists working in government hospitals of eastern India responded to the study. Data was collected using a likert type questionnaire sent through digital mail. Statistical analysis was done by The Statistical Package for Social Sciences 20.

Results:

Anaesthesiologists surveyed had a resident to consultant ratio of 4.2:1 and male female ratio of 1.8:1. Only 22.58% practiced epidural anaesthesia often but 80.64% had a positive attitude toward its routine use regardless of age, gender and years of practice. The greatest hindrance to practice came up as inadequate knowledge about epidural analgesia among obstetricians.

Conclusions:

We concluded that although knowledge was adequate and attitude positive among anaesthesiologists regarding epidural labor analgesia, its practice seems to be lagging behind. To improve this and optimise patient benefits, obstetricians have to foster collaboration with the anaesthesiologists to further upgrade their knowledge on epidural labor analgesia. Hospitals have to increase resource allocation to maternal health services for procurement of equipment so as to aid in the establishment of an effective epidural labor analgesia program

Key-words: Anaesthesia, Epidural/utilisation. Anaesthesia, Obstetrical/psychology. Health Knowledge, Attitudes, Practice. Surveys and Questionnaires.

Key Messages: The increased availability of epidural labor analgesia and positive experiences of parturients who have had painless labor has reshaped the belief of women today. It is therefore important that care providers are fully acquainted with epidural labor analgesia. The purpose of this survey is to study the knowledge, attitude and practice of epidural analgesia in labor among anaesthesiologists at government hospitals of eastern India.

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I. Introduction

Around the world more than two thirds of women who give birth vaginally have described labor pains as distressing, traumatic, overwhelming, horrifying, or severe during the first stage of labor and even more excruciating during the second stage despite its short duration.¹ This pain has encouraged trials of pain relief methods, including, water bath, hypnosis, acupuncture intravenous / spinal opioids and birthing exercises.² Epidural analgesia (EA) in labor was first put to use in 1949, gained popularity in the early 80s and is the gold standard since then.³ Due to the availability of more effective, safer and newer epidural drugs and techniques, the previously associated adverse effects like, prolonged labor that had raised disputes among anaesthesiologists, obstetricians, and hospital administrations have decreased greatly.

The knowledge, attitude and practice of epidural analgesia by anaesthesiologists at government teaching hospitals of eastern India is ill-defined since no study has been done to determine this here, so far. Unfortunately, EA in labor may not yet be readily available and popular in government hospitals in this part of our country at present, but it is bound to grow in demand sooner rather than later. It is therefore critical to study the knowledge, attitude and practice of anaesthesiologists concerning epidural labor analgesia to know the cause for

its low uptake and make required suggestions to enable a smooth foundation of an effective epidural labor analgesia program so that mothers at government hospitals can have access to safe analgesia during labor if they so wish for.

II. Subjects and Methods

The current study was designed as a cross-sectional descriptive survey using a likert type questionnaire accompanied by a cover letter and a consent form. The format of the survey sheet is shown in [Table 1]. The survey was carried out at anaesthesiology departments of various teaching government hospitals across parts of eastern India.

Table 1
QUESTIONNAIRE

A Survey Of The Knowledge Attitude And Practice Regarding Epidural Labor Analgesia Among Anaesthesiologists In Government Hospitals Of Eastern India

Tick the appropriate answer;

1. Sex;
M / F
2. Cadre;
 - a) Consultant
 - b) Senior Resident
 - c) Junior Resident
 - i) Second year ii) Third year
3. Age
4. Length of career in anaesthesiology (during and after post graduate studies);
 - 1) 1-5 yrs
 - 2) 6-9 yrs
 - 3) 10-14 yrs
 - 4) 15-20 yrs
 - 5) > 20 yrs

1. Knowledge	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
1.1 Fever commonly occurs following Epidural Analgesia	1	2	3	4	5
1.2 Epidural Analgesia is best applied at stage 2 of labor?	1	2	3	4	5
1.3 Nulliparous women benefit more from Epidural Analgesia compared to the multiparous women	1	2	3	4	5
1.4 Epidural analgesia has no effect on duration of labor	1	2	3	4	5
1.5 Epidural analgesia increases the incidence of caesarian sections	1	2	3	4	5
1.6 High risk patients should have Epidural Analgesia applied in the late first stage of labour	1	2	3	4	5

2. Attitude	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
2.1. Our hospital has adequate professionals (obstetricians, anaesthesiologists and nurses) to handle an Epidural Analgesia programme	1	2	3	4	5
2.2 Our hospital has adequate equipment to handle Epidural Analgesia and its possible complications	1	2	3	4	5
2.3 Epidural analgesia denies mothers the participation in their birth experience	1	2	3	4	5
2.4 The anaesthesia department in our hospital has not been supportive when asked to apply Epidural Analgesia for labor	1	2	3	4	5
2.5 Less than 30% of the mothers who come to our Hospital are college educated	1	2	3	4	5

2.6. The method of education on Epidural Analgesia for anaesthesiologists in our country is inadequate	1	2	3	4	5
2.7 Epidural Analgesia should routinely be offered to parturients at our hospital	1	2	3	4	5

2.8 Have you or (if male) your spouse or a close relative had an epidural done in labor?

- i) Yes ii) No If yes why;
- a) I have had good experiences with Epidural Analgesia in my patients so I used it
- b) My friends encouraged me after their pleasant experiences
- c) I had read about it and I wanted to try it
- d) Other If no why;
- a) I didn't know much about Epidural Analgesia when we had the baby(ies)
- b) I don't support the use of Epidural Analgesia
- c) No children in the family
- d) Other

2.9 In your opinion what is the greatest hindrance to an effective Epidural Labor Analgesia program at our Hospital.

- a) Poor attitude of the nursing staff
- b) Poor attitude of the mothers
- c) Inadequate resources
- d) Lack of knowledge on epidural Analgesia among obstetricians
- e) Other

3.1 Do you routinely educate mothers on epidural analgesia in prenatal clinics at the Hospital?

- 1. Yes
- 2. No

3.2 How often do you practice Epidural Labor Analgesia at the Hospital on a scale of 1-5?

- 1-Not at all
- 2- Rarely (once in a while)
- 3- Common (often)
- 4- Frequent (more than twice a week)
- 5- Always (every time)

The survey was done after the approval of institutional Ethics and Research committee. Data collection tool was pre tested at the anaesthesiology department of our hospital after survey had been explained to participants. It was said to be well understood, simple and took approximately 10-15 minutes to fill. Participants were excited about the topic and encouraged it.

For the actual survey, the study was explained to the participants by the principal researcher by digital mail before sending the pre tested questionnaires to those who consented to the study. They were filled out by them and mailed back at the same sitting. The filled out questionnaires were then checked for completeness. The survey ran from 1st March to 30th April 2016.

During data analysis, knowledge questions which had answers as “strongly agree” and “agree” were termed as ‘true’. Responses that voiced “strongly disagree” or “disagree” were taken as ‘false’ and neutral termed ‘don't know’. The data was then coded into a computer, analysed using SPSS software version 20.0 and presented using tables, graphs and charts.

The study population consisted of both residents and consultants of anaesthesiology, with a minimum of one year experience in anaesthesiology, working in government hospitals of eastern India.

To calculate the sample size, the study used the Cochran Formula used by Fisher et al.⁴

Formula;

$$n = z^2pq / d^2$$

Where;

N is sample size

Z is the standard normal deviation at the required confidence level (95%).

P is the proportion in the target population roughly calculated to have characteristics being measured. Since there is no estimate obtainable of the proportion in the target community supposed to have the characteristics of interest, 50% (0.5) was used as recommended in the same formula.

q Is $1-p=0.5$. D is the statistical significance = 0.05 Therefore;

The desired sample size was =60

Seventy anaesthesiologists working in government hospitals of eastern India initially consented to participated in the survey. Sixty-two participants responded and filled up the questionnaire send to them.

Inclusion criteria were second and third year residents and consultants of anaesthesiology at government teaching hospitals of east India who consented to participate in the study.

Exclusion criteria were:

1. Anaesthesiologists who did not consent to the study.
2. Anaesthesiologists at the government hospitals who were on leave and out of the hospital throughout the period of the study.
3. Anaesthesia residents in their first year of study . Having just joined the program most students would not have had adequate exposure at the time of the survey.

Ethical considerations

1. The nature of the study was explained to the participants.
2. The study had no harmful effects on the participants.
3. There were no cost implications on the participants
4. Only initials were used and each participant remained anonymous and their opinion handled in absolute confidentiality
6. Permission was sought from the Ethics and Research Committee of our institution.

III. Results

Gender Distribution Of Participants:

Male participants were 40 (64.52%) and female participants were 22 (35.48%).

Years Of Experience Of And Age Of Participants:

Fifty participants (80.65%) had practiced for between 1-5 years and their ages ranged between 18-29 years; 6.45% and 12.90% had practiced for more than 15 years and their ages ranged between 45-59 years. The years of experience generally matched their age.

1. Knowledge: [Figure1]

Only 41.93% of the participants understood that epidural analgesia had no effect on duration of labor but 51.61% of the participants correctly stated that epidural analgesia does not increase the incidence of caesarean sections. Also, over 74% correctly indicated that fever does not commonly occur following the application of epidural analgesia. Most participants incorrectly stated that epidural labor analgesia is best applied at stage two of labor but correctly said that EA should be given in the late first stage of labor for high risk patients. More than half of the participants thought that nulliparous women benefit more from epidural analgesia compared to their multiparous counterparts.

2. Attitude: [Figure1]

While 70.97% thought that the teaching government hospitals have an adequate number of professionals to handle an epidural analgesia program, only 19.36% thought our hospitals does not have adequate equipment to handle epidural analgesia and its possible complications. Also, around half thought that < 30% of the mothers who come to the government hospitals are college educated. Over 70% thought that the method of education on epidural labor analgesia at our hospitals was inadequate. Majority of the participants thought epidural labor analgesia does not deny mothers the participation in their birth experience and favoured routine counseling of parturients on it. Participants seemed positive that the anaesthesiology department of their hospitals had been supportive on the subject and has constantly tried to popularise epidural labor programmes.

The Greatest Hindrance To Epidural Labor Analgesia At Our Hospitals:

More than 38% of the participants indicated that lack of knowledge on epidural analgesia by obstetricians was the greatest hindrance to epidural labor analgesia program at our hospitals. The other big reason being inadequate resources at the government hospitals of eastern India.

3. Practice:

How Often Anaesthesiologists Practiced Epidural Labor Analgesia At Hospitals:

Only 22.58% participants commonly practiced epidural labor analgesia at their hospital, 25.81% did not practice at all and 51.61% practiced once in a while

The Use Of Epidural Analgesia On Participants And Their Spouses Or Close Relative:

An overwhelming 70.97% of the participants said they themselves had never used epidural analgesia on themselves or had it done for their spouses or a close relative. Only 9.67% said they had personally used epidural in labor because he/she had read about it and decided to try it.

Figure 1

1. Knowledge	True	Don't Know	False
1.1 Fever commonly occurs following Epidural Analgesia	16.12%	9.67%	74.19%
1.2 Epidural Analgesia is best applied at stage 2 of labor?	58.06%	6.45%	35.48%
1.3 Nulliparous women benefit more from Epidural Analgesia compared to the multiparous women	64.51%	22.58	12.90%
1.4 Epidural analgesia has no effect on duration of labor	41.93%	3.22%	54.83%
1.5 Epidural analgesia increases the incidence of caeserian sections	22.5%	25.80%	51.61%
1.6 High risk patients should have Epidural Analgesia applied in the late first stage of labour	67.74%	16.12%	16.12%

Responses On Knowledge Among Participants

2. Attitude	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
2.1. Our hospital has adequate professionals (obstetricians, anaesthesiologists and nurses) to handle an Epidural Analgesia programme	32.26%	38.71%	6.45%	9.68%	12.90%
2.2 Our hospital has adequate equipment to handle Epidural Analgesia and its possible complications	32.26%	35.48%	12.90%	9.68%	9.68%
2.3 Epidural analgesia denies mothers the participation in their birth experience	3.23%	12.90%	9.68%	35.48%	38.71%
2.4 The anaesthesia department in our hospital has not been supportive when asked to apply Epidural Analgesia for labor	16.13%	9.68%	19.35%	32.26%	22.58%
2.5 Less than 30% of the mothers who come to our Hospital are college educated	25.81%	22.58%	12.90%	19.35%	19.35%
2.6. The method of education on Epidural Analgesia for obstetricians/ anaesthesiologists in our country is inadequate	25.81%	48.39%	9.68%	9.68%	6.45%
2.7 Epidural Analgesia should routinely be offered to parturients at our hospital	29.03%	51.61%	12.90%	6.45%	0.00%

Attitudinal Scores Among Participants

Out of the 70.97%, 40.91% said they had not themselves used it because they had no children and 13.64% said they did not know much about epidurals when they had their babies. The remaining 45.45% had other reasons varying from having had precipitate labor to saying they were not given that option and some had chosen elective caesarean sections. None of the participants said they did not support the use of epidural analgesia in labor.

IV. Discussion

While pain relief during parturition has been considered unwarranted for decades especially in ancient cultures, epidural labor analgesia has now become popular and acceptable as a form of labor analgesia worldwide. It is the most complete and potent method of pain relief during delivery, and the only method that provides analgesia without maternal or fetal sedation.⁵

The main aim of the survey was to determine the knowledge, attitude and practice of anaesthesiologists at the teaching government hospitals of eastern India with regard to epidural labor analgesia with a view of finding out in the opinion of the anaesthesiologists why there was such a low uptake of EA in their institution despite its effectiveness and the growing trends worldwide. The study also sought to find out deficits in knowledge, attitude and practice if any with the aim of improving the same, for fostering a working effective epidural labor analgesia program at our hospitals.

The survey was distinguished by a 88.57% response rate. The survey incorporated both residents and consultant anaesthesiologists because both have equal opportunity to practice epidural labor analgesia. Also as seen in similar studies, knowledge does not always have a linear relationship with years of experience.⁶ Majority of the participants (80.65%) had 1-5 years of experience. They were also the youngest with ages between 18-29 years and mostly males. Only 12 participants had practiced for more than 15 years. This may lead to better trends in the use of epidural labor analgesia since younger anaesthesiologists seem to favour EA slightly more.

1. Knowledge

Majority (58.07%) of participants did not know that epidural analgesia does not affect the duration of labor. A study by Nafisi in 2006 showed that Epidural Analgesia does not prolong the active-first or second stage of labor.⁷ A similar study done in 2011 by Spanish obstetricians concluded that the apparent increased duration of labor seems to be attributable to other obstetric factors such as first delivery rather than epidural analgesia.⁸ This issue has however remained controversial among many anaesthesiologists.

Over 74% participants knew that fever does not frequently occur following application of epidural analgesia. There is usually a mild fever and occurs in the absence of any infectious process. It is one of the rarer complications documented. This is confirmed in a study done in 2005 by Fernandez.⁹ Though rare, the knowledge that epidural analgesia may provoke fever may help to avoid unnecessary use of antibiotics or fetal extraction.

Most participants (58.06%) incorrectly thought that epidural analgesia is best applied at stage two of labor. Randomised controlled trials have uniformly demonstrated that early neuraxial blocks in labor may result in faster delivery without adversely affecting the labor progress and outcome.¹⁰

More than half the participants (64.51%) thought that nulliparous women benefit more from epidural analgesia compared to multiparous women. Studies have shown that the mean intensity of pain increases equally with increased cervical dilatation in nulliparous women as with their multiparous counterparts.¹¹ It can be therefore concluded that neither nulliparous nor multiparous women need analgesia more.

Majority (51.61%) knew that epidural analgesia does not increase the incidence of caesarian deliveries, which is in tandem with a study done in 2004 in Dallas by Sharma et al.¹²

More than half (67.74%) of the participants correctly stated that epidural analgesia should not be delayed till the late first stage of labor for high risk mothers. A study done by Doshi in 2009 showed positive results with epidural analgesia applied during early first stage of labor with cervical dilatation of 3 cm and more.¹³ As labor progresses, sympathetic nervous system response to pain results in marked rise in circulating norepinephrine and epinephrine levels that cause increased cardiac work and oxygen demand, which are difficult for high risk mothers to sustain. Effective analgesia attenuates this.¹⁴ It is therefore important to give adequate analgesia early.

2. Attitude

In the opinion of 70.97% (44) participants, government hospitals have adequate professionals (obstetricians, anaesthesiologists and nurses) to handle an epidural analgesia program. This is relevant because epidural rates are by and large affected by the availability of anaesthesia providers, nurses and practice policies in hospitals.

Government hospitals have adequate equipment to handle epidural analgesia and its possible complications in the opinion of 67.74% participants. This affects practice as is highlighted by IASP or International Association for the Study of Pain and contradicts the statistics of many low to middle income countries.¹⁵ While 74.19% participants thought epidural analgesia does not deny mothers the participation in their birth experience, Canadian researchers were less positive about the role of mothers in their own birth after epidural administration according to a study done by them.¹⁶ This could be attributed to the differences in culture across countries.

Participants unanimously seemed to be of view that the department of anaesthesiology at their hospitals have been supportive when asked to apply epidural analgesia for labor. Other studies have also emphasised collaborative effort between obstetricians and anaesthesiologists as a source of good epidural labor analgesia services.¹⁷

Many participants (48.39%) thought that less than 30% of the mothers who come to the government hospitals in eastern parts of the country seeking maternal health services were college educated. This may contribute to diminished counselling since low education qualifications are generally associated with low acceptance levels. A study done by Sheiner et al in 2000 also supports this concept.¹⁸

According to 74.2% participants, the method of education on EA in labor was inadequate. This could in a way be attributed to inadequate collaboration between the obstetrics and anaesthesiology departments and very low or no emphasis on the practical aspect of epidural labor analgesia in the anaesthesiology postgraduate curriculum at the hospitals here.

Most participants (80.64%) favoured the routine use of epidural labor analgesia at government hospitals. Most of these were younger anaesthesiologists This is comparable to Nigerian studies done on the same subject.¹⁹

In the opinion of the participants the greatest hindrance to an epidural labor analgesia program at government teaching hospitals was lack of knowledge on epidural analgesia among obstetricians. Our survey and earlier studies also show that another reason ascribed by patients not being able to obtain epidural in labor despite asking for it were related to limited equipment and resources.²⁰

3. Practice

Despite good knowledge and a positive attitude towards epidural labor analgesia, only 22.58% participants commonly practiced epidural labor analgesia at their hospitals. In the opinion of most participants, lack of knowledge among obstetricians and limited resources caused this. These low trends are comparable to a German study where epidural rates were less than 10%.²¹ Improvements in use of EA in labor seem necessary to match the rising trends worldwide.

There was no relation between personal experience and practice of epidural labor analgesia. One could however argue that most of the young (< 35 years) participants who had a tendency toward epidural labor analgesia had no children.

V. Conclusion

1. Most anaesthesiologists (80.64%) at government hospitals of eastern India had a positive attitude towards the routine use of epidural labor analgesia among parturients.
2. Only 22.58% anaesthesiologists at government hospitals practiced epidural labor analgesia commonly.
3. The greatest hindrance to an epidural analgesia program in the opinion of anaesthesiologists was lack of knowledge on epidural analgesia among obstetricians.

On the basis of these findings, the following proposals are being put forth to increase the practice of anaesthesiologists regarding EA in labor and to optimise patient benefits from this technique.

1. The obstetrics department of hospitals to foster collaboration between themselves and the anaesthesiology department to further improve knowledge on epidural labor analgesia. The anaesthesiology departments should include labor ward in their duty rota to increase awareness among the obstetric care givers so as to build firm support towards routine epidural labor analgesia for parturients. Current pain management information, including basic and epidural analgesia techniques and its benefits should be provided in orientation programs for obstetricians and nurses.
2. Hospital administration and the departments of obstetrics and anaesthesiology should come up with protocols that will design and aid the implementation of favourable epidural labor analgesia practices.
3. Hospitals should increase resource allocation to maternal health services for procurement of equipment so as to aid in the establishment of an effective epidural labor analgesia program.

Another contribution of this study was to bring forward a basis upon which research can be compared in the times ahead. Similar studies should be undertaken at other facilities to build a record of helpful findings upon which further education and practice can be based for optimum patient safety and satisfaction.

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