

Knowledge about Labour Analgesia among Final Year Medical Students in a Tertiary Care Hospital

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ABSTRACT

Background: Lack of understanding regarding labour pain has long been shown to be a burden on both health care providers and expectant mothers. Labor analgesia is still not well established and is undermining in underdeveloped nations. Therefore, the aim of this study was to explore final year medical students' knowledge and attitudes towards pain relief during labor.

Methods: A cross-sectional study was conducted among final year undergraduate medical students of a tertiary care medical college hospital for 2 months. A Structured, and self-administered questionnaire was used (N = 97). Data was analyzed by using coGuide software, V.1.0.3.

Results: No statistical significance found in awareness parameters before learning about labour analgesia (P Value >0.05). There was no statistically significant difference between self-grading. However, there was statistically significant difference in different awareness related parameters before and after learning labour analgesia and many showed the improvement in post class response compared to before class response. (P value <0.05).

Conclusion: The current study revealed that before learning labour analgesia students had lack of knowledge regarding labour analgesia. The awareness class proved to be very effective for students to gain appropriate knowledge about labour analgesia and its importance as a reliable pain relief method.

During the first and second phases of labor, parturients feel varying degrees of labour pain, varying from moderate to severe. The course, severity, and features of first and second-stage labour pain, as well as the etiology, differ widely across women [1–5]. When labor pain is intense, it might have a negative impact on the parturient and the fetus. High-risk pregnancies include those with cardiac co-morbidity. As a result, good labor pain management is not only compassionate but also offers several physiological and psychological advantages for both the mother and the infant [4–7]. The technique of pain management during childbirth is currently gaining popularity. Since its inception, from biblical mythology to the present, there have been several debates. Apart from medical reasons, a

mother's desire for labor pain relief is sufficient grounds. Labor analgesia is considered a significant aspect of antenatal, intrapartum, and postpartum treatment in many industrialized nations. Planning the strategy of labor analgesia during antenatal care for women with fixed cardiac output is becoming a standard procedure [7–9]. Pain treatment in labor is now available in a variety of forms, both pharmacological and nonpharmacological. The basics of obstetric pain management treatments must be safe, simple, effective, and should ideally protect fetal homeostasis while not interfering with labor progression [3,7,10]. There is a wide spectrum of non-pharmacological choices accessible for pain relief in labor include psychological therapies [7,11-12], continuous social support [7,11-12], mind-body

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intervention [7,11-12], the use of transcutaneous electrical nerve stimulator (TENS) [13-14], acupuncture [15-16]. The pharmacological analgesia for labor include nonopioids(ketamine) [7], opioids (pethidine, morphine, and fentanyl) [3,7,17-18], inhalational analgesia (a 50:50 mix of oxygen/nitrous oxide, and volatile agents) [3,7], and regional analgesia for labor [epidural analgesia [19-20], combined spinal-epidural, and peripheral nerve blocks] [3,7]. The effectiveness and side effects of various labor pain management treatments vary. Overall, the data shows that epidural labor analgesia is still the gold standard, and it is now the most often utilized approach. According to studies, health professional-related barriers, system-related barriers, and patient-related barriers all contribute to optimal labor pain management and the use of labor analgesia. In many poor and middle-income countries, healthcare provider-related obstacles are the most common, the easiest to detect and quantify, and the easiest to correct. The primary hurdles that impact labor analgesia usage in low resource settings include a lack of understanding, negative attitudes, and the absence of labor analgesia choices [2,21–23].

A growing amount of research suggests that many health care personnel lack the necessary knowledge and attitude to properly manage labor pain, resulting in poor functional and psychosocial outcomes for many women and their babies [22,23]. This lack of understanding and attitudes starts in elementary school [24–26]. There have been few studies on students' knowledge and attitudes concerning pain treatment during childbirth. However, research on graduate students' understanding of pain management in general (midwifery, pharmacy, nursing, and medical students) have been conducted, and inadequate knowledge of pain management has been documented [26-27].

Methods

This study was conducted with the aim of studying the knowledge of medical students regarding labor analgesia in a tertiary care Medical College hospital.

A cross-sectional study was conducted at a tertiary care medical college hospital for a period of one month (July 2019, August 2019). One hundred final-year medical students were recruited by convenience sampling. A pre-structured standardized questionnaire was used to collect data on the knowledge and attitude of medical students towards labor analgesia.

Statistical methods

As per the Q responses of the questions compiled into tables with frequency and percentage. The score

responses were compared between males and females using the Chi square test /Fisher's Exact test (If the overall sample size was < 20 or if the expected number in any one of the cells was < 5, Fisher's exact test was used). The score responses were compared before and after class using McNemar's test. Data was analyzed by using coGuide V.1.0.3 [28].

Results

A total of 97 subjects were included in the final analysis.

Table 1- Summary of gender in the study population (N=97)

Gender	Frequency	Percentages
Female	48	49.48%
Male	49	50.52%

There were 48 (49.48%) female and 49 (50.52%) males in the study (Table 1).

As per the responses before class, there was no statistically significant difference in knowledge and awareness parameters (Awareness about labour pain and relief methods, should labour pain be relieved? and aware of different types of labour, pain relief methods, different methods, at what state would you like labour analgesia to be established, Self-grading of knowledge about labour analgesia) between male and female (P Value >0.05). There was statistically significant difference in need of extra expense between male and female (P value <0.05) (Table 2).

As per the responses After class, there was no statistically significant difference in knowledge and awareness parameters (Awareness about labour pain and relief methods, should labour pain be relieved? and aware of different types of labour, pain relief methods, different methods, at what state would you like labour analgesia to be established, Self-grading of knowledge about labour analgesia) between male and female (P Value >0.05). however, there was statistically significant difference in Transcutaneous electrical nerve stimulation between male and female (P value <0.05) (Table 3).

There was no statistically significant difference in at what state would you like labour analgesia to be established and self-grading of knowledge about labour analgesia between male and female (P value >0.05) (Table 4).

There was a statistically significant difference in different awareness-related parameters before and after class and many showed improved post class response compared to before class response. (P value <0.05) (Table 5).

Table 2- Comparison of knowledge and awareness parameters between male and female in before class (N=97)

Knowledge and awareness parameters	Gender		Chi square	P value
	Male (N=49)	Female (N=48)		
Awareness about labour Pain and Relief Methods	28 (57.14%)	28 (58.33%)	0.014	0.906
Should labour Pain Be Relieved?	31 (63.27%)	33 (68.75%)	0.325	0.569
Aware of different types of labour pain relief methods	28 (57.14%)	17 (35.42%)	4.602	0.032
Methods				
Inhalation of gas	7 (25%)	2 (11.76%)		
Inj in diff lower back	12 (42.86%)	7 (41.18%)	2.07	0.558
Iv/im inj	6 (21.43%)	4 (23.53%)		
Transcutaneous electrical nerve stimulation	3 (10.71%)	4 (23.53%)		
Epidural analgesia is inserting a catheter at the back to give pain relieving drugs	32 (65.31%)	31 (64.58%)	0.006	0.941
Can the patient walk with an epidural in situ	22 (44.9%)	23 (47.92%)	0.089	0.766
Interferes with progress of labour	22 (44.9%)	16 (33.33%)	1.361	0.243
Increased incidence of instrumentation caesarean section	30 (61.22%)	26 (54.17%)	0.495	0.482
Increases incidence of maternal backache	20 (40.82%)	27 (56.25%)	2.312	0.128
Leads to adverse maternal outcome	19 (38.78%)	17 (35.42%)	0.117	0.732
Leads to adverse neonatal outcome	16 (32.65%)	12 (25%)	0.692	0.406
Need of extra expense	16 (32.65%)	26 (54.17%)	4.571	0.033
Will you recommend labour analgesia to your patients	15 (30.61%)	18 (37.5%)	0.512	0.474
Would you suggest any other form of analgesia for your patient	21 (42.86%)	14 (29.17%)	1.971	0.160
At what state would you like labour analgesia to be established				
Early first stage	18 (36.73%)	20 (41.67%)		
Late first stage	19 (38.78%)	12 (25%)	2.247	0.325
Second stage	12 (24.49%)	16 (33.33%)		
Self-grading of knowledge about labour analgesia				
Poor	19 (38.78%)	21 (43.75%)		
Average	25 (51.02%)	21 (43.75%)	1.271	0.736
Good	3 (6.12%)	5 (10.42%)		
Excellent	2 (4.08%)	1 (2.08%)		

Table 3- Comparison of knowledge and awareness parameters between male and female after the class (N=97)

Knowledge and awareness parameters	Gender		Chi square	P value
	Male (N=49)	Female (N=48)		
Awareness about labour Pain and Relief Methods	45 (91.84%)	45 (93.75%)	0.133	1.000
Should labour Pain Be Relieved?	48 (97.96%)	48 (100%)	*	*
Aware Of Different Types of Labour Pain Relief Methods	45 (91.84%)	45 (93.75%)	0.133	1.000
Methods				
Inhalation of gas	35 (71.43%)	34 (70.83%)	0.004	0.948
Inj in diff lower back	45 (91.84%)	48 (100%)	*	*
Iv/im inj	45 (91.84%)	45 (93.75%)	0.133	1.000
Transcutaneous electrical nerve stimulation	3 (6.12%)	10 (20.83%)	4.521	0.033
Epidural analgesia is inserting a catheter at the back to give pain relieving drugs	43 (86%)	43 (95.56%)	2.522	0.164
Can the patient walk with an epidural in situ	40 (83.33%)	42 (89.36%)	0.731	0.393
Interferes with progress of labour	12 (24.49%)	10 (20.83%)	0.185	0.667
Increased incidence of instrumentation/caesarean section	15 (30.61%)	11 (22.92%)	0.732	0.392
Increases incidence of maternal backache	5 (10.2%)	4 (8.33%)	0.101	1.000
Leads to adverse maternal outcome	10 (20.41%)	8 (16.67%)	0.225	0.636
Leads to adverse neonatal outcome	12 (24.49%)	10 (20.83%)	0.185	0.667
Need of extra expense	25 (51.02%)	22 (45.83%)	0.261	0.609
Will you recommend labour analgesia to your patients	46 (93.88%)	45 (93.75%)	0.001	1.000
Would you suggest any other form of analgesia for your patient	12 (24.49%)	10 (20.83%)	0.185	0.667

Table 4- Comparison of knowledge and awareness parameters between male and female after the class (N=97)

Parameters	Gender		Chi square	P value
	Male (N=49)	Female (N=48)		
At what state would you like labour analgesia to be established				
Early first stage	38 (77.55%)	38 (79.17%)	0.440	0.803
Late first stage	9 (18.37%)	7 (14.58%)		
Second stage	2 (4.08%)	3 (6.25%)		
Self-Grading of Knowledge About Labour Analgesia				
Poor	3 (6.12%)	3 (6.25%)	0.314	0.957
Average	5 (10.2%)	4 (8.33%)		
Good	39 (79.59%)	38 (79.17%)		
Excellent	2 (4.08%)	3 (6.25%)		

Table 5- Comparison of Awareness related parameters between before and after class

Awareness parameters	Before class	After class		McNemar's Test P value
		Yes	No	
Awareness about labour Pain and Relief Methods	Yes (N=56)	50 (89.29%)	6 (10.71%)	<0.001
	No (N=41)	40 (97.56%)	1 (2.44%)	
Should labour Pain Be Relieved?	Yes (N=64)	63 (98.44%)	1 (1.56%)	*
	No (N=33)	33 (100%)	0 (0%)	
Aware Of Different Types of Labour Pain Relief Methods	Yes (N=45)	43 (95.56%)	2 (4.44%)	<0.001
	No (N=52)	47 (90.38%)	5 (9.62%)	
Inj in diff lower back	Yes (N=19)	15 (78.95%)	4 (21.05%)	*
	No (N=78)	78 (100%)	0 (0%)	
Epidural analgesia is inserting a catheter at the back to give pain relieving drugs	Yes (N=63)	53 (84.13%)	10 (15.87%)	<0.001
	No (N=34)	33 (97.06%)	1 (2.94%)	
Can the patient walk with an	Yes (N=45)	35 (77.78%)	10 (22.22%)	<0.001
	No (N=52)	47 (90.38%)	5 (9.62%)	
Increased incidence of instrumentation/ caesarean section	Yes (N=56)	13 (23.21%)	43 (76.79%)	<0.001
	No (N=41)	13 (31.71%)	28 (68.29%)	
Increases incidence of maternal backache	Yes (N=47)	4 (8.51%)	43 (91.49%)	<0.001
	No (N=50)	5 (10%)	45 (90%)	
Leads to adverse maternal Outcome	Yes (N=36)	15 (41.67%)	21 (58.33%)	0.002
	No (N=61)	3 (4.92%)	58 (95.08%)	
Will you recommend labour Analgesia to your patients	Yes (N=33)	31 (93.94%)	2 (6.06%)	<0.001
	No (N=64)	60 (93.75%)	4 (6.25%)	

Discussion

The present study revealed that undergraduate medical students' overall knowledge of labor pain and analgesia was consistently poor in the most outcome before the class. We could also observe when we compared male students with female students; we could not obtain any statistical significance. But the majority of the female students agreed that labor pain should be relieved. In the study by Endalew N et al., 70% of final-year midwifery students did not know the methods of labor analgesia [29].

In the present study, we observed that knowledge of labor pain and analgesia among both genders before class was significantly low. After learning about labor analgesia, the knowledge of labor pain and analgesia was improved comparatively more among the female students. We could state that female student responded more positively than male students. A similar study by

Anozie OB et al. found that most female obstetricians, compared to their male colleagues, recommended epidural analgesia for parturients in labor [30]. With these findings, we could be related the emotional connection that a woman develops with the sense of pain the difficulty during the labor.

Our study results suggested a significant correlation between learning about labour analgesia, the awareness of labour pain, and relief methods. All of them agreed that labor pain should be relieved. Findings of a study in Ethiopia suggested that 212 (54.2%) respondents believed that obstetric analgesia should be given to laboring mothers, whereas 195 (49.9%) believed that the labor pain of every mother should be managed [31]. Similarly, in a study by Geltore TE et al., 162 (47.6%) participants knew labor analgesia [32].

After the class observations were quite impressive as study participants showed increased awareness of various types of labor pain methods; in a study by Terfesa EA et

al., the majority of respondents, 335 (84.2%), reported that they knew both nonpharmacological and pharmacological labor pain management methods [33]. A study in Nigeria found that 56.8% of the study subjects were aware of nonpharmacological analgesia [34].

In the present study, most of the students learned that epidural analgesia does not affect the increased incidence of instrumentation/cesarean section. Similarly, nearly 57.88% of the anesthesiologists in a survey by Narayanappa A et al. agreed that labor epidural analgesia did not impact the cesarean rate and instrumental delivery [35]. The Cochrane database systemic trials have shown no statistical difference between epidural analgesia and cesarean rates [20]. After the class, most students believed that epidural analgesia would not cause maternal backache. According to a study by Loughnan BA et al., epidural analgesia in labor was not linked to an increase in the prevalence or incidence of backache [36]. There was an appreciable increase in the participant's willingness to recommend labor anesthesia to their patients in the present study. Similarly, 84% of the anesthesiologist and 75% of obstetricians responded that they were willing to encourage and provide LaA for demanding parturients, and 91% of obstetricians and anesthesiologists wished to start LaA unit given an opportunity in a study conducted at Pondicherry, India [37].

In the present research sample size of the participants was less; hence generalisability of the study will be affected. Also, the study's cross-sectional nature makes the chances of bias, especially recall bias, not eliminated. We recommend studies including the cause-and-effect relationship between the factors and the outcome variables to put more light on the topic.

Conclusion

The current study showed that before learning about labor analgesia, the students lacked knowledge of labor analgesia. The reason could be unavailability of suitable infrastructure. The awareness class proved to be very effective for students learning about labour analgesia. Hence, we firmly believe that with proper teaching learning methods the medical students and other healthcare students can upgrade their knowledge of labour analgesia so that the parturients will be benefited with the best of care.

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Abbreviations: Transcutaneous electrical nerve stimulator (TENS)

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