



EFFECT OF EPIDURAL ANALGESIA VERSUS NO ANALGESIA IN NULLIPAROUS FEMALES IN TERMS OF DURATION OF LABOUR

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Abstract

Background: For women in labour, pain alleviation is crucial. There are several pharmacological approaches to treat the pain including opioid injections, local analgesia, and Nitrous Oxide inhalation. The technique of epidural analgesia, which is frequently used as a kind of pain treatment during childbirth, involves injecting a local anaesthetic in lower region of spine to relieve pain. Unintended negative effects on the mother and child remain a concern, though.

Objective: This research was carried out to compare the mean duration of labour in nulliparous females with and without epidural analgesia.

Study Design: A randomized Control Trial

Place And Duration: This study was conducted in Jinnah Hospital, Lahore from March 2019 to March 2020

Methodology: A total of 400 patients were enrolled in the study, 200 were placed in Group I and 200 in Group II. In Group I a bolus injection of 10 ml of ropivacaine 0.2% and 50µg fentanyl was given and after 5 minutes a test dose of 3 ml lidocaine (2%) was given. In Group II, patients were not given epidural anesthesia. Data was entered and analyzed using SPSS version 23.

Results: According to the findings of the study, the patients ranged between 18-45 years of age, the mean age of patients in Group-I and Group-II was 30.5±7.43 and 30.3±7.91 years respectively. The mean gestational age in Group-I & II was 38.7±1.21 and 39.0±1.4 weeks respectively. We observed that the mean duration of 1st stage of labour in Group-I and II was 3.92±0.65 hours and 4.87±0.82 hours (p<0.001) while the mean duration of 2nd stage of labour in Group-I and II was 30.12±3.49 minutes and 26.37±2.15 minutes (p<0.001).

Conclusion: In conclusion, epidural analgesia in nulliparous women caused the first stage of labour to last less time and the second stage to last longer than it would have otherwise.

Keywords: Epidural analgesia, Nulliparous, Duration of labour

INTRODUCTION

Up to 30% of moms report that labour is significantly more painful than they anticipated, which makes sense given how intense and terrible it is [1-3]. The degree of agony that women feel when giving birth varies substantially. While some women experience little pain, others find it to be deeply upsetting [4-6]. Numerous physiological and psychological elements, such as fear and anxiety, past experiences, and the level of emotional support received, can have an impact on it [5, 6]. In general, medications should be used to minimize pain in patients during labour [7]. Since most of them need pain relief and there are several options to relieve the pain and let women handle with pain [5]. But the labour analgesia must be safe and accompanied by a minimal amount of unwanted consequences for both the mother and the child, as well as for the delivery procedure [2]. The epidural analgesia is considered to be highly effective in relieving pain however, it may impede the process of labour [1]. A local anaesthetic is injected into the lower region of the spine as part of the epidural analgesia procedure, which blocks the painful impulses produced by the nerves of the contracting uterus during labour. [6]. Even though there is general agreement, different practices exist on when to administer an epidural and how to reduce its negative effects on the duration and outcome of a patient's labour. A study reported that the mean first and second stage of labour (mins) was significantly higher in the epidural group, p-value <0.001. The mean first stage of labour in epidural groups was 431 ± 239 and in no epidural group was 249 ± 174 minutes. The mean second stage of labour (mins) in the epidural and no epidural group was 101 ± 69 and 61 ± 56 [6]. While one more study reported that the mean duration of the first stage of labour was 4.83 ± 1.59 hours and 5.48 ± 1.56 hours in the control and the mean second stage of labour was 33.13 ± 12.78 minutes in the epidural group and 27.53 ± 11.73 minutes control. The mean first and second stage of labour was statistically low as compared to no epidural analgesia, p-value <0.05 [4]. A local study was done in all parity [1]. We planned this study to compare mean duration of labour in nulliparous females in local population. As no local study is available on nulliparous females and there are controversies as lower 1st stage of labour was reported in one study in epidural Group-I while a higher mean 1st and 2nd stage of labour was reported in another study [6]. In general, medications should be used to minimize the pain in a patient during labour and epidural block is an option to minimize the patient's pain.

METHODOLOGY

In this randomized control trial, 400 mothers were enrolled for this study to compare the mean duration of labour in nulliparous females with and without epidural analgesia. There were four criteria to include the subjects in the study, which included parity, gestational age, presentation and dilatation. A total of 400 Nulliparous women with gestational age 37-41 weeks, vertex presentation and ≥ 4 cm dilatation were made part of the study and were divided into two groups, I and II. All the women were inquired for sociodemographic details initially in the labour room, later, the women in Group I, we inserted an epidural catheter in the intervertebral space at L2-L3 or L3-L4, 10 ml of ropivacaine 0.2% and 50 μ g fentanyl was given and after 5 minutes a test dose of 3 ml lidocaine (2%) was given. However, in Group-II no epidural anesthesia was given. The first and second stages of labour's duration were computed using operational definitions. A single consultant handled all aspects of labour monitoring and delivery, while a single anesthesia consultant administered the epidural. We used SPSS version 23 for data entry and analysis. Numerical variables were presented in mean and SD, and we used frequency tables with percentages to present the categorical data. Post stratified t-test was applied taking p-value ≤ 0.05 as significant.

RESULTS

There were 400 patients included in this randomized control trial. Group-I included 200 patients for whom epidural analgesia was given while Group-II included 200 patients without any analgesia.

According to the findings of the study, the age ranged from 18-45 years, the mean age of patients in Group-I and Group-II was 30.5 ± 7.43 and 30.3 ± 7.91 years respectively.

The mean gestational age in Group-1 & II was 38.7 ± 1.21 and 39.0 ± 1.4 weeks respectively. We observed that the mean duration of the first stage of labour in Group-I and II was 3.92 ± 0.65 hours and 4.87 ± 0.82 hours ($p < 0.001$). While the mean duration of the second stage of labour in Group-I and II was 30.12 ± 3.49 min and 26.37 ± 2.15 minutes ($p < 0.001$). (As shown in Table I)

Variable	Group I		Group II		P-Value
	Mean	SD	Mean	SD	
Age (Years)	30.5	± 7.43	30.3	± 7.91	
Gestational Age (Weeks)	38.7	± 1.21	39	± 1.4	
1st Stage of Labour (hour)	3.92	± 0.65	4.87	± 0.82	< 0.001
2nd Stage of Labour (min)	30.12	± 3.49	26.37	± 2.15	< 0.001

There were 100 (50%) and 102 (51%) patients aged between 18 to 30 years in Group-I & II, while 100 (50%) and 98 (49%) patients were aged 31 to 45 years in Group- I & II respectively.

In Group-I and II 90 (45%) and 122 (61%) patients went through normal vaginal delivery while the instrumental delivery was observed in 110 (55%) and 78 (39%) patients.

It was observed that 129 (64.5%) and 115 (57.5%) women had a gestational age between 37 to 39 weeks in Groups-I and II respectively while the rest of the patients in each group had gestational age 40 weeks and above.

We observed that 78(39%) and 83(41.5%) females were obese in Group –I and II respectively. Table II depicts the details of the qualitative variables of patients under study.

Table II Frequency Distribution of categorical Variables in the Study

Variable	Group-I (Epidural analgesia)		Group-II (No analgesia)	
	No.	%	No.	%
Age (Year)				
18-30	100	50	102	51
31-45	100	50	98	49
Gestational age (week)				
37-39	129	64.5	115	57.5
40-41	71	35.5	85	42.5
Mode of Delivery				
NVD	90	45	122	61
Instrumental delivery	110	55	78	39
Obesity				
Obese	78	39	83	41.5
Non-obese	122	61	117	58.5

DISCUSSION

Compared to parenteral opioids, epidural analgesia was more effective in the first and second stages of labour as measured by visual analogue scale.[7, 8]. Although regional anaesthesia has been linked to a lower rate of maternal death attributable to anesthesia, there is an ongoing debate over whether epidural analgesia slows down labour and increases the likelihood of surgical delivery by producing dystocia. [9, 10, 11].

In comparison to the situation where the patients are given systemic opioid analgesia or no analgesia

either, research has revealed that epidural analgesia is linked to an extended 1st stage of labour, however, certain researchers have found no correlation between the two. [12-14].

The time duration of the 1st stage of labour was comparatively shorter in the epidural group (Group-I) than in the control group (Group II) in the current study. As observed in the current study, Wong et al.'s [16] and Fyनेface-Ogan et al.'s [17] investigations in 2005 also showed that epidural analgesia was linked to a shorter first stage of labour. (3.9 ± 0.65 vs 4.8 ± 0.8 ; $p < 0.001$). The epidural's improved analgesia may have decreased inhibitory effect of catecholamine on the contractility of the uterus, resulting in quicker cervical dilation and a shorter duration of the first stage. Since the Garden of Eden, people have been aware of the pain of labour. The most excruciating experience many women will ever have is labour. Each woman has a unique experience, and the many pain-relieving procedures used depend on the local tactics and the person's particular preferences. Myths and disputes have always surrounded labour pain relief. Therefore, administering efficient and secure analgesia during labour has continued to be difficult. There are numerous methods, both pharmacological and non-pharmacological, for treating childbirth pain [7]. With combined spinal-epidural(CSE) and its benefits of decreased motor block, a study showed shortened first stage of labour with CSE compared to traditional epidural analgesia [18].

In the present study, the epidural group's second stage was observed to be longer than the control group. Numerous retrospective studies consistently showed a link between epidural analgesia and longer durations of second stages of labour [19, 20, 21, 22], but few randomized, prospective studies were unable to detect any statistically significant differences between the effects of epidural analgesia on labour duration when compared to non-epidural analgesia [8, 23-26].

CONCLUSION

In conclusion, epidural analgesia in nulliparous women caused the first stage of labour to last less time and the second stage to last longer than it would have otherwise.

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