

Effects of Epidural Analgesia on the Progress of Labour and Mode of Delivery

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ABSTRACT

Objective: To compare effects of epidural analgesia on the progress of labour and mode of delivery in two groups.

Study Design: Quasi -experimental study.

Place and Duration of Study: This study was conducted at the Department of Obstetrics & Gynecology, Shaikh Zaid Woman Hospital Larkana from 15 Dec 2013 to 1 Jun 2014.

Materials and Methods: 100 hundred patients of primigravida fulfilling the inclusion criteria were selected. Two groups were divide equally, Group I includes patients who had epidural block for labour analgesia Group II includes those patients who experienced labour without the block. Groups were compared with length of first and second stage of labour and the mode of delivery whether spontaneous or instrumental vaginal delivery.

Results: Mean extent of first period of labor in group I and II was 12.4+0.6 hours 10.8+0.2 hours respectively. In groups I the mean extent of nextperiod of labor was 1.1+0.1 hours and in group II 1.2+0.3 hours. In the mode of delivery, in groups I, 84% patients were delivered by SVD and 16% patients were delivered by instrumental delivery. In group II, 88% patients were delivered by SVD and 12% patents were delivered by instrumental delivery.

Conclusion: It is concluded that women having epidural analgesia caused in shorter duration of first stage and second stage of labour than women without analgesia. Whereas, in epidural group instrumental vaginal as well as caesarean delivery rate was not increased.

Key Words: Epidural, analgesia, labor, delivery, mode, pain, instrumental delivery

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INTRODUCTION

Labour has always been painful for many women. Kind David, a man with much experience wrote "fear took hold upon them there, and pain, as of a woman". Epidural analgesia provides the most effective pain control during labor¹. It bring almost outright labor strain comfort (90-95%) if administered timely and does not impede the progress of the first stage of labor². First obstetric anesthetic was administered by Dr. James Young Simpson in 1847.³ Epidural analgesia has applications ranging from analgesia with a minimal motor block to dense anesthesia with the full motor block. These variables can be controlled by drug choice, concentration and dosage⁴.

The process of normal delivering a product of conception from the uterus via the birth canal after the 28th week of gestation.

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The stages includes dilatation that lasts from the onset of true labor until the cervix is fully dilated⁵. The actual Pain arises in the spinal segments T₁₁ to T₁₂ and L₁⁶. Followed by next phase of the expulsion of the fetus that lasts from the full dilatation of cervix until the fetus is born and the Pain is produced by distension of vagina and perineum Sensory pathways⁷. The last stage is from the birth of the child until the placenta and membranes are delivered and uterus has contracted firmly to compress the uterine blood sinuses. Pain pathway is similar to the first stage of labor^{6,7}.

This Pain devoted to debility, aggravates apprehension and can produce long haul hysterical brawl which may negative impact on mother's accord with her baby during first few compelling days. Uterine action as a rule significantly affects the advancement of work. Early investigations demonstrated that enlistment of caudal or lumbar epidural absence of pain brought about a transient diminishing in uterine contractility, enduring 10-30 min⁸⁻¹². Various technical considerations in the application of epidural analgesia are applied to overcome the later consequences^{13,14}. The main objective is to compare the effects of epidural analgesia on the progress of labour and mode of delivery in two groups.

MATERIALS AND METHODS

This study was conducted from 15 Dec 2013 to 1 Jun 2014 at Department of Obstetrics & Gynecology, Shaikh Zaid Woman Hospital Larkana. A total of one

hundred (100) patients were included in this study. They were allocated in two groups randomly, 50 in each group. Group I includes patients who had epidural block for labour analgesia Group II includes those patients who experienced labour without the block. Primigravida, singleton pregnancy, patient ≥ 37 weeks gestation, cephalic presentation and active phase of labour (Cervical dilatation of 3cm or more) were included in this study. An informed consent was obtained from all the patients. All demographic profile and history of presenting complaints were obtained. Detailed examination including general physical examination and systemic examination were also done. Partogram was maintained which was graphic documentation of uterine contractions, oxytocin augmentation, and progress of labour. Main outcome measures included length of first and second stage of labour and the mode of delivery whether spontaneous or instrumental vaginal delivery. All the descriptive data were analyzed by mean \pm SD. Chi Square test was applied on mode of delivery to see any significance between the groups. A p value of ≤ 0.05 was taken as significant.

RESULTS

Out of 100, mean age of women in group I was 24.8 \pm 3.6 years and 23.9 \pm 3.6 years in group II. The mean duration of marriage in group I was 17.2 \pm 10.8 months and mean duration of marriage in group II was 13.8 \pm 10.9 months. The mean gestation age in group I was 38.9 \pm 0.9 weeks and in group II was 39.1 \pm 1.0 weeks

Table No.1: Demographic profile of Group participants (N=100)

Demographic profile of participants		
Variables	Group I	Group II
Age	24.8 \pm 3.6 years	23.9 \pm 3.6 years
Duration of marriage	17.2 \pm 10.8 months	13.8 \pm 10.9 months
Gestation age	38.9 \pm 0.9 weeks	39.1 \pm 1.0 weeks

Table No.2: comparison of Duration of first phase of labor between groups (N=100)

Duration (Hours) of first phase of labor	Groups I (n=50)		Groups II (n=50)	
	No.	Percentage	No.	%age
1-5	0	0	5	10.0
6-10	20	40.0	18	36.0
11-15	20	40.0	19	38.0
16-20	7	14.0	7	14.0
21-25	2	4.0	1	2.0
26-30	1	2.0	0	0
Mean \pm SD	12.4 \pm 4.6		10.8 \pm 4.5	

P value is non significance

Table 2: show the mean span of first phase of labor in group I was 12.4 \pm 4.6 hours and mean period of first

stage of labour in group II endure 10.8 \pm 4.5 hours with statistically not significant p value of 0.062. Table showed that in group I 40% (n=20) were in 6-10 and 11-15 hrs while in group II 38% (n=19) was in 11-15 hrs of duration.

Table 3: showed that mean duration of second phase of labor in group I was 1.1 \pm 0.2 hours and mean period of second stage of labour in group II was 1.2 \pm 1.3 hours. P value of 0.067 which is non-significant. In group I, 46% (n=23) was in <1 hr while in group II 44% (n=22) was in 1-2hrs duration

Table No.3: Comparison of duration of second phase of labor between groups (N=100)

Duration (Hours) of second phase of labor	Groups I (n=50)		Groups II (n=50)	
	No.	%age	No.	%age
< 1 hour	23	46.0	19	38.0
1-2 hours	19	38.0	22	44.0
> 2 hours	8	16.0	9	18.0
Mean \pm SD	1.1 \pm 0.3		1.2 \pm 0.4	

P value is non significance

Table 4: shows the mode of delivery. In group I, 42 (84%) patients were delivered by SVD and 8 (16%) patients were delivered by instrumental delivery. In group II, 44 (88%) patients were delivered by SVD and 6 (12%) patients were delivered by instrumental delivery.

Table No.4: Comparison of mode of delivery between groups (N=100)

Mode of Delivery	Groups 1 (n=50)		Groups 2 (n=50)	
	No.	%age	No.	%age
Spontaneous vaginal delivery	42	84.0	44	88.0
Instrumental delivery	8	16.0	6	12.0

DISCUSSION

Epidural analgesia bring the most powerful pain control between labors. Epidural block up to T10 is needed for labor and up to T4 for caesarean section. Epidural analgesia may high the chances of instrumental delivery by few mechanisms. Suppress serum oxytocin matched can develop reducing uterine activity. This can be in section to IV fluid infusion being given before epidural analgesia reducing oxytocin release¹⁵.

In our study, group I, the mean duration of the first phase of labor in group I and II was not significant. As compared with the study conducted by Halonen et al¹⁶ the mean duration of the first phase of labor was not significant, which is comparable with our study. Another local study concluded by Khan et al¹⁷ that the mean extent of the active first phase of labor in

primiparous women 5.10 hours in the epidural group while it was 6.65 hours in the control group (p less than 0.001). While in our study the mean duration of the first stage of labor in group I was 12.4 hours and group II was 10.8 hours, which is much higher than the above study.

In group I, the mean span of second phase of labor was 1.1 ± 0.2 hours and mean extent of the second phase of labor in group II is 1.2 ± 0.3 hours with a non significant p -value of 0.067. As compared with the study of Salim et al¹⁸ the mean duration of the second stage of labor was 36 minutes, which is comparable with our study.

In our study, the approach of delivery, in group I, 42 (84%) patients were delivered by SVD and 8 (16%) patients were delivered by instrumental delivery. In group II, 44 (88%) patients were delivered by SVD and 6 (12%) patients were delivered by instrumental delivery. Halonen et al evaluated that there was no difference in the spontaneous delivery rate between the groups, but the cesarean delivery rate was significantly ($P < 0.05$) higher (16.3% vs. 6.7%) in the epidural analgesia faction than in the bolus group.

CONCLUSION

It is concluded that women having epidural analgesia caused in shorter duration of first stage and second stage of labour than women without analgesia. Whereas, in epidural group instrumental vaginal as well as caesarean delivery rate was not increased.

Recommendation: Obstetric care providers would benefit from this information to enhance their counselling regarding the use of epidural analgesia for women. Factors devoted to the result of labour are multiple and convoluted. We have a role to provide maximum analgesia during labour. This is clearly accomplish with epidural analgesia.

Author's Contribution:

Concept & Design of Study: Ahmed-Ud-Din Soomro
 Drafting: Tanweer Akhtar
 Data Analysis: Najia Bhatti
 Revisiting Critically: Ahmed-Ud-Din Soomro,
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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