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ORIGINAL ARTICLE

Walking Epidural Analgesia During Labour – Its Efficacy On Pain Relief, Its Influence On Progress Of Labour, and Outcome of Delivery

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ABSTRACT

Labour pain can be deleterious for mother and baby. Epidural analgesia relieves labour pain effectively with minimal maternal and fetal side effects. A prospective study was undertaken to ascertain effective efficacy of walking epidural analgesia on pain relief, its influence on progress of labour and outcome of delivery. 50 Term women with single fetus, 25 each in epidural and walking epidural groups. Epidural group given 0.25% bupivacane and 50 micro gram fentanyl epidurally and the walking epidural group given 0.065% bupivacane and 25 micro gram of fentanyl and both group were assessed in the aspect of pain relief, progression of labour and outcome of delivery. In epidural group, non were able to ambulate, but in walking epidural all parturients were able to ambulate.80% of parturients in epidural group required oxytocin acceleration whereas only 40 % of them required in walking epidural group. The duration of second stage of labour pronged (mean 90 min) in epidural group compared to walking epidural group (mean 51.2 min).80% of epidural analgesic group had complications whereas only 40% of them had complications in walking epidural. There is significant reduction in pain perception, no undue prolongation of second stage labour, no increase in the incidence of instrumental delivery and low complications were observed in walking epidural parturients when compared to epidural analgesic group.

KEY WORDS : Epidural analgesia, Walking epidural analgesia, Pain relief.

Introduction

Childbirth is the painful process experienced by almost all labouring woman. The labour pain experienced has multple physiologic and psycological dimension and its intensity also varies greately from one parturient to another[1]. Labour and delivery results in severe pain for many women. The McGill Pain Questionnaire ranks labour pain in the upper part of the pain scale between cancer pain and amputation of a digit[2]. Labour pains involved multiple complex neurobehavioral responses to allogenic stimuli, it gives a personal and unique experience to individual woman . The cause effect relationship in the labour pain does not always corresponds to clinical response ; whatever it matters to

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understand the labour pain felt by pregnat women .It is essentials to provide appropriate pain relief[3]. The goal of maternal labour analgesia is the most effective and least depressant method of intrapartum pain relief in current practice[4]. With the advancement of low dose epdural techniques also known as "walking epidurals", women with an epidural now being provided with an opportunity to remain mobile during their labour and adopt some upright positions such as standing and ambulation which may not be possible for woman with a traditional epidural[5]. Upright position during first stage of labor may improve maternal comfort and reduce the need for analgesia[6]. Low concentration of bupivacaine combined with fentanyl, results in analgesia with minimal side effects[7] . The goal of maternal labour analgesia is relief of pain without compromising maternal safety, progress of labour and foetal well-being. Epidural analgesia is the most effective and least depressant method of intrapartum pain relief in current practice[8].The aim of the study is to compare the effect of epidural and walking epidural analgesia in labour on pain relief, labour progress and mode of delivery.

Materials and Methods

A prospective hospital based study was carried out in the Obstetrics and Gynecology Department of Madurai Medical College and Government Rajaji Hospital, A CEMONC centre, Madurai, Tamilnadu, India over a period of 8 months from January 2014 to August 2014. A total 50 singleton antenatal women with vertex presentation, who crossed 37 weeks of gestation admitted for parturition who weighs below 90kg who are willing to participate are enrolled. Parturients with maternal complications such as pre-eclampsia, refractory maternal hypotension, coagulopathy, sepsis/bacteremia, preterm labour, previous cesarian, placenta previa, abnormal lie are excluded. Procedure was explained and consent obtained. Clinical examination done, fetal wellbeing confirmed by cardiotocogram, preanaesthetic assessment done. The parturients are preloaded with 500-1000ml of ringer lactate. Under aseptic precautions, 25 parturients in made into group A are given 0.25% bupivacaine and 50 micrigrams of fentanyl epidurally. 25 parturients as group B are given 0.0625% of bupivacaine and 25 micro grams of fentanyl. The time of onset analgesia was recorded. The vitals and fetal heart rate were monitored frequently. Pain relief was assessed using visual analogue scale on 1-10scale. Motor blockade assessed using Modified Bromage score. During first stage of labour parturients in group. A remained recumbent and parturients in group B were allowed to sit on the bed or walk around the bed with support on both sides. Progress of labour was monitored using partograph. Outcome of delivery was recorded. Parturients were monitored frequently for any complications.

Modified Bromage Score

Score Criteria;

Complete block (unable to move feet or knees)

Almost complete block
(able to move feet only)

Partial block(just able to move knees)

Detectable weakness of hip flexion while supine (full flexion of knees)

No detectable weakness of of hip flexion while supine

Able to perform partial knee bend

Results

In epidural group the minimum time of onset is 4 min and maximum time of onset is 7mins. While in walking epidural group

the minimum time of onset is 4mts and maximum time of onset is 6mts, p' value is 0.53 which is statistically insignificant, which indicates that the duration of onset of analgesia does not varies in both groups. After 15 minutes of drug administration, the level of pain was around 1 in most of parturients in both the groups. (Table.No.1) there was excellent pain relief in both the groups. At 1 hour of drug administration, there was increase in pain level with the score of 3 in both groups, almost all parturient required top up doses. In epidural group the level of motor block was around score of 1 to 2, none were able to ambulate. (Table.No.2) But in walking epidural the score was around 5 to 6, all the parturients were able to ambulate. The maximum duration of ambulation in walking epidural is 20 minutes and minimum duration is 10 minutes. In (Table.No.3) more number of top up doses are required in epidural group than walking epidural group which infers that the duration of labour is more in epidural group when compared to walking epidural group. In (Table.No.4), dose of bupivacaine is more in epidural group maximum of 50 mgs compared to walking epidural group where the maximum dose is 25mgs.

From (Table.No.5), 80% of parturients in epidural group required oxytocin where as 40% in walking epidural group required oxytocin acceleration. This indicates that in walking epidural group the oxytocin requirement for acceleration is less compared to epidural group. Mean duration of first stage labour in both groups. (Table.No. 6), indicates that there is no difference in duration of first stage of labour in both groups. (Table. No.7), suggests that the duration of second stage of labour is prolonged in epidural group compared to walking epidural group. Mean duration of third stage of labour in epidural and walking epidural is 7.64mts and 7.76mts respectively, suggests duration of third stage of labour is same in both groups. (Table. No.8), suggests, In epidural group the rate of instrumental delivery was 24% and in walking epidural was 8%.The high incidence of instrumental delivery in epidural group is due to poor maternal forces leading to prolonged second stage due to motor blockade and also suggests LSCS is not effected by either of the analgesia. Study also suggests mean score of APGAR in first minute is 6.12 and 6.40 mts in epidural and walking epidural respectively, and mean APGAR at 5mts is 7.52 and 7.64mts in epidural and walking epidural groups respectively Suggests APGAR score is nat effected by type of epidural analgesia. Table.No. 9 suggests, 80% of epidural group had complications but only 40% of walking epidural group had complications. The bladder catheterisation was more epidural group 40% than in walking epidural 8%.

Distribution of Parturients

Table.No.1. As per visual analogue score pain score at 15mts, 2hour and 3hour of drug administration

Time		N	Mean	SD	'p' value
15mts	Epidural	25	1.73	0.506	0.058
	Walking epidural	25	1.25	0.815	
1 hour	Epidural	25	2.68	0.20	1
	Walking epidural	25	2.70	0.96	
2 hour	Epidura	25	3.00	0.751	<0.001
	Walking epidural	25	2.40	0.496	
3 hour	Epidural	25	3.48	0.509	<0.001
	Walking epidural	25	2.08	0.640	

Table.No.2. As per the mean Modified Bromage scale at one hour of drug administration

	No	Mean MBS	Standard Deviation	‹ P› Value
Epidural	25	1.48	0.59	1.00
Waling epidural	25	5.8	0.48	
Total	50	3.64	2.22	

Table.No.3. As per the number of top up doses required

No of top up doses	Epidural		Walking epidural		Total	P ' value
	No	%	No	%		<0.001
1	0	-	5	20	5	
2	5	20	17	68	22	
3	16	64	3	12	19	
4	4	16	0	-	4	

Table.No.4 As per the bupivacaine used among the parturients epidural group and walking epidural group

Dose of bupivacaine		
EPIDURAL	No	%
12.5mgs	25	100
25mgs	25	100
37.5mgs	20	80
50gms	16	64
Walking epidural	No	%
6.25	25	100
12.5mgs	25	100
18.5mgs	17	68
25mgs	03	12

Table.No.5 As per the need for oxytocin acceleration

Oxytocin requirement	Epidural		Walking epidural		Total	P' value
Required	No	%	No	%		0.004
	20	80	10	40%	30	
Not required	5	20	15	60%	20	

Table.No.6 As per the duration first stage of labour

	No	Mean Duration mts	Standard deviation	P' value
Epidural	25	308.6	45.6	0.363
Walking epidural	25	296.76	45.66	
Total	50	302.68	45.56	

Table.No.7 As per the duration of second stage of labour in minutes

	No	Mean duration	Standard deviation	P'
Epidural	24	90.83	22.24	<0.001
Walking epidural	24	51.20	16.09	
Total	48	71.02	27.27	

Table.No.8 Mode of delivery in both groups

	SVD	LSCS	FORCEPS	VACCUM	TOTAL
Epidural	18	1	6	-	25
	72%	4%	24%	0%	100%
Walking epidural	22	1	1	1	25
	88%	4%	4%	4%	100%

Table.No.9 Complications during labour

Complications	Epidural		Walking Epidural	
	No	%	No	%
Present	20	80	10	40
Absent	5	20	15	60
Type				
Pruritis	5	20	3	12
Headache	2	8	2	8
Nausea, Vomitting	3	12	3	12
Bladder catheterisation	10	40	2	8

Discussion

Labour pain experienced by women is so severe and it is as painful as amputation of digit which holds a score of 40 MC Gill pain rating index. The international association for the pain (IASP) 2007-2008 declared that "global year against pain management in women- real women real pain. Epidural analgesia is gold standard for pain management [9]

In this study Group A comprising 25 parturients were given epidural analgesia and

group B comprising 25 parturients were given walking (low dose) epidural analgesia. In this study both groups had no statistical difference with respect to demographic data age, body massindex, gravid and period of gestation.

In various studies, epidural analgesia was initiated at various stages of cervical dilatation. In 2006 ACOG (American College of Obstetrics and Gynaecology) and ASA (American Society of Anaesthesiologists) jointly emphasised there is no need to arbitrary wait till 4-5 cm cervical dilatation had occurred[10]. In Wong et al study in 2005, it is established that there is no increase in cervical dystocia and caeserian section, if epidural is given early in labour and it should not be delayed till 5cm dilatation [11]. In our study also 40% of the parturients administered drug before 4cm cervical dilatation in epidural group and 44% of the parturients were administered drug before 4 cm cervical dilatation. Out of the 10 parturients in epidural and 11 parturients in walking epidural group who received drug before 4 cm of cervical dilatation none needed instrumentation or ceasarean delivery

In our study, minimum and maximum time of onset of analgesia in both groups 4 mts and 7 mts respectively. After 15 mts of drug administration pain score was around 1 to 2 indicating excellent to good pain relief in all the parturients in both groups.

Frenea et al in a randomized control trial of ambulation versus recumbant women with epidural analgesia showed 85% of the parturient in the ambulatory group were able to walk [12]. In our study parturients in the epidural group had a modified Bromage scale score of 5-6 and most of them were to ambulate.

In a study conducted by Vallejo et al the mean duration of walking in the ambulatory group was 25mts. In our study minimum duration of ambulation was 10mts and maximum duration was 20mts[13]. In our study the number of top up doses used in epidural group was relatively more than walking epidural group, as the duration of labour was more in epidural group 16% of the parturients in epidural group required fourth top up dose.

In a study conducted by Vallejo et al the use of oxytocin was 36% in ambulatory group and 40.8% in nonambulatory group [13]. In our study 80% of the parturients in epidural group required oxytocin augmentaion and only 40% of the parturients in walking epidural group required oxytocin augmentation.

A randomized control trial " effect of low dose mobile verses traditional epidural technique on mode of delivery; COMET study group was 35% in women receiving traditional epidural and 43% in low dose mobile epidural group. In this study, the rate of instrumental vaginal delivery was 37% in traditional and 28 to 29% with low dose mobile epidural group. And also, the rate of caesarian delivery was equal in both groups. The low dose epidural group had second stage duration of 60 mts or less than in traditional epidural group. In our study, the mean duration of second stage of labour in epidural group is 90.83mts and in walking epidural group is 51.20mts. But the duration of first and third stage of labour is same in both groups. In our study rate of instrumentatal delivery is 24% in epidural and 8% in walking epidural group. The low incidence of instrumental results in negligible motor blockade and good maternal bearing down efforts. The rate of LSCS in both the group is 4% indicating epidurals does not affect the rate of caeserian delivery.

In our study, 80% in epidural and 40% of the parturients in walking epidural had complications. In the study conducted by Paddalwar et al the incidence of pruritis was 3.3% and vomiting was 3.3%. In our study

the incidence of pruritis was 20% in epidural and 12% in walking epidural. Incidence of headache and nausea, vomiting was 8% and 12% in both groups respectively. Christine Jih et al in his studies showed that fetal heart rate abnormalities contributed 6-12%.In our study 8%of the babies in walking epidural and 12% of the babies in epidural group had been admitted in NICU due to low APGAR score and were all discharged after recovery.

Conclusion

There is significant reduction in pain perception in the parturients receiving walking epidural analgesia .There is no undue prolongation of second stage of labour in walking epidural group, also walking epidural don't increase the risk of instrumental deliveries, so labouring woman opting for epidural analgesia, should be explained about the benefits of the walking epidural and offered a chance of choosing walking epidural analgesia.

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