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EPIDURAL ANALGESIA IN LABOUR

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ABSTRACT... mehnazkhakwani@yahoo.com. **Introduction:** In modern obstetrics, alleviation of labour pains by simple, safe and effective means presents a unique problem. Epidural analgesia has emerged as a popular and relatively safe option in this context. It requires injection of local anaesthetic agent into epidural space, which is commonly approached through lumber intervertebral space. **Objective:** Aim of study was to determine effect of epidural analgesia on progress of labour and mode of delivery, to find out its complications in labour and puerperium and to evaluate neonatal out come in terms of apgar score. **Setting:** Obstetrics and Gynaecology, Nishtar Hospital, Multan. **Period:** one year. **Material and methods:** Sample size: 50 patients. **Results:** Out of 50 patients, 4 (8%) were below 20 years of age, 8 (16%) over 30 years of age and 17(34%) patients were 25-29 years of age. Highest percentage was 21-24 years of age i.e. 21(42%) patients. 43 (86%) patients were primi-gravida, 2 (4%) patients had one spontaneous abortion and 5 (10%) patient were second gravida. Three (25%) patients (1-49 with 95% CI) were induced for PIH with no evidence of coagulopathy and fetal compromise. Fifteen (30%) of patients (14-34 with 95% CI) required no augmentation with oxytocin. In 29 (58%) of patients although duration less than 8 hours but labour was augmented with syntocinon. In 2 (11% patients instrumental delivery was performed due to meconium stained liquor and persistent bradycardia. Highest percentage of patients 89% had instrumental delivery because of prolonged second stage. **Conclusion:** Epidural analgesia provides excellent pain relief in great majority of patients. Maternal fatigue and distress with all of its ill effects on labour and puerperium is abolished.

Key words: Epidural analgesia, meconium, nullipara, bradycardia, gestaional age.

INTRODUCTION

A painful labour is a universal fear experienced by pregnant women as they approach term. In modern obstetrics, alleviation of labour pains by simple, safe and effective means is possible. In recent years different methods have been devised like systemic administration of narcotics, Inhalational analgesia, Psychoprophylaxis, Hypnosis, Acupuncture, Transcutaneous nerve

stimulation and Audioanalgesia.

Epidural analgesia has emerged as a popular and relatively safe option in this context. It requires injection of local anaesthetic agent into epidural space, which is commonly approached through lumber intervertebral space. Intention is to relieve the pain of labour and delivery by injecting sufficient volume and strength of analgesic agent to block pain impulses passing along the thin posterior nerve routes but not to block the larger anterior motor fibres.

There are several important benefits offered by epidural analgesia. They provide extremely effective pain relief without causing sedation or mental confusion. It is also very easy to use the epidural if an instrumental delivery or caesarean section becomes necessary.

So we can say that Epidural analgesia though requiring specialized facilities remain one of the most valuable forms of pain relief during parturition[1]. It is a safe and effective method of intrapartum pain relief and may be administered without undesirable effects on labour outcome.

Epidural analgesia is indicated in any parturient woman who desires so. Breech delivery and multiple delivery where it provides optimal conditions for any obstetric manipulation which may be required[2,3,4]. Epidural analgesia has been recommended for the management of pre-eclamptic women in labour[5] because the maternal cardiac output is unaffected[6], placental intervillous blood flow appears to be enhanced[7] and that control of maternal blood pressure is improved. Cardiac disease or pulmonary hypertension where the epidural will attenuate the increase in cardiac output, mean arterial pressure and cardiac work, which occurs during labour[8].

AIMS AND OBJECTIVES

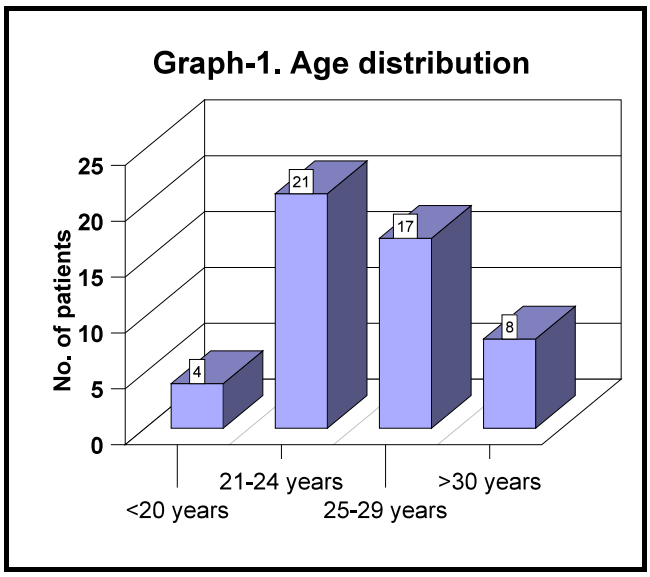
Aim of study was to determine effect of epidural analgesia on progress of labour and mode of delivery, to find out its complications in labour and puerperium and to evaluate neonatal out come in terms of apgar score.

MATERIAL AND METHODS

Epidural analgesia was administered in 50 patients. All patients were counseled for the procedure and fully informed about effectiveness, cost, intrapartum and postpartum sequlae. The study included Primi and second gravida from 37-42 weeks of gestation. Gestational age was confirmed with L.M.P., clinical assessment and USG. All patients were in active stage of labour at 3cm dilatation either spontaneous or induced and singleton cephalic presentation with adequate pelvic dimensions. A detailed history and examination was carried out and relevant investigations done. It was confirmed that there were no contraindications to the use of epidural analgesia.

RESULTS

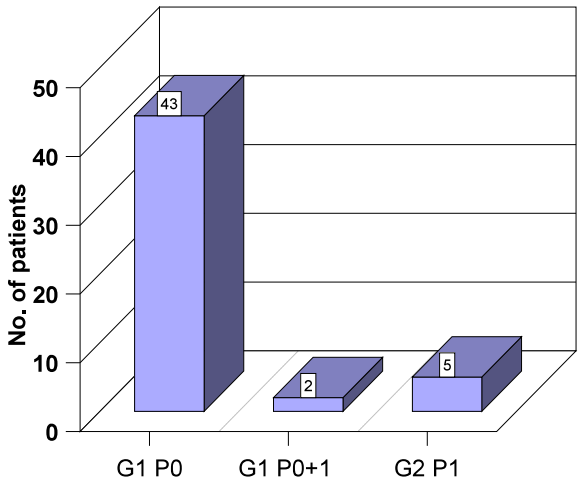
Out of 50 patients, 4 (8%) were below 20 years of age, 8 (16%) over 30 years of age and 17(34%) patients were 25-29 years of age. Highest percentage was 21-24 years of age (Graph-1).



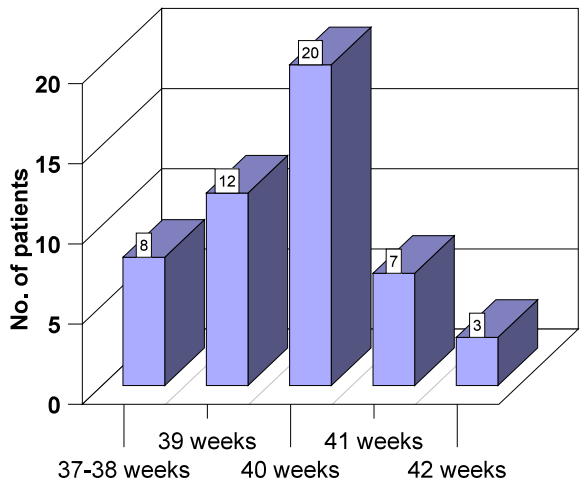
43(86%) patients were primi-gravida, 2 (4%) patients had one spontaneous abortion and 5 (10%) patient were second gravida. Highest percentage was of primi gravida (Graph-2). Highest percentage of patients was 40 weeks of gestation i.e. 20 (40%) patients and lowest percentage was 42 weeks seen in 3 (6%) of patients (Graph-3).

Out of 50 patients, 38 (76%) patients were admitted in spontaneous labour either in latent or active phase of labour while in 12 (24%) patients induction of labour carried out due to obstetrics indications (Graph-4).

Graph-2. Distribution of patients according to gravidity



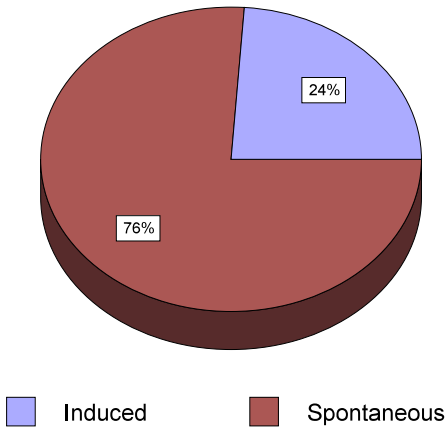
Graph-3. Distribution of patients according to gestational age



At 41 weeks, 7 (58%) patients (30-86 with 95% CI) were induced because they complained of decrease fetal movements. Three (25%) patients (1-49 with 95% CI) were induced for PIH with no evidence of coagulopathy and fetal compromise (Table-I).

Fifteen (30%) of patients (14-34 with 95% CI) required no augmentation with oxytocin. In 29 (58%) of patients although duration less than 8 hours but labour was augmented with syntocinon. First stage of labour was prolonged more than 8 hours in 12% patients (3-21% with 95% Ci) in spite of oxytocin augmentation (Table-II).

Graph-4. Mode of onset of labour



12 (24%) patients were applied Wrighley's forceps, 2 (4%) patients were delivered with Neville Barnes forceps. While 4 (8%) of patients with ventouse extraction and 4 (8%) of patients were delivered with LSCS. All caesarean sections were done due to obstetric indications (Table-III).

In 2(11% patients instrumental delivery was performed due to meconium stained liquor and persistent bradycardia. Highest percentage of patients 89% had instrumental delivery because of prolonged second stage (Table-IV).

Highest percentage of patients 75% had arrest in active phase of labour. All of these patients were nullipara. Gestational age >41 weeks and baby weight 4-4.3 kg. Arrest occurred because of relative CPD and baby

position was occipito posterior and transverse. Only one patient (25%) had caesarean section for fetal distress (Table-V).

Apgar score was >7 in 40 (80%) of neonates, 4-6 in 10 (20%), four of these neonates inhaled meconeum ((Table-VI).

Shivering was seen in highest percentage of patients 36%. Only I patient 2(%) suffered from significant hypotension. None of the patients had high spinal, dural tap and neurological sequlae (Table-VII).

Urinary retention was found in 6 (12%) of patients while backache was present in 7 (14%) of patients (Table-VIII).

Table-I. Indications of induction of labour

Indications	No. of pts	%age	95% CI
Postdated pregnancy	7	58%	30-86
PIH	3	25%	01-49
Prom	2	17%	00-36

Table-II. Effect of analgesia on first stage of labour

Duration	No. of pts	%age	95% CI
<8 hours without oxytocin augmentation	15	30%	14 -34
<8 hours with oxytocin augmentation	29	58%	44-72
>8 hours with oxytocin augmentation	6	12%	03-12

Table-III. Mode of delivery in study group

Mode of delivery	No. of pts	% age	95% CI
Spontaneous vertex delivery	38	56.0	42-70
Wrighley's forceps	12	24.0	12.36
Neville barnes	02	04.0	00-09
Ventouse extraction	04	08.0	00-16
LSCS	04	08.0	00-16

40 (80%) patient were fully satisfied, 2 (4%) felt that it had helped to some extent. While 3 (6%) were not satisfied. They basically had failed epidural due to unblocked segments, unilateral block and other block regressions (Table-IX).

Table-IV. Indications of instrumental delivery

Indications	No. of pts	% age	95% CI
Meconeum stained liquor and persistent bradycardia	02	11.0	0-25
Prolonged second stage	16	89.0	75-99
Failure to push	12	67.0	46-88
Malrotation of head	04	22.0	3-41

Table-V. Indications of caesarean section

Indications	No. of Pts	% age	95% CI
Fetal distress	1	25.0	0-65
Arrest in active phase of labour	3	75	35-100

Table-VI. Effects of analgesia on apgar score

Apgar Score	No. of pts	% age	95% CI
> 7	40	80.0	69-91
4-6	10	20.0	09-31
> 4	Nil	Nil	Nil

Table-VII. Intra partum complications

Complications	No. of pts	% age	95% CI
Shivering	18	36	23-49
Hypotension (uneventful)	17 < 25 mmHg	02.0	0-6
Significant	1> 25 mmHg	0.6.0	0-12
Nausea & vomiting	03	06.0	0-12
Failed epidural	03	06.0	0-12

Table-VIII. Indications of caesarean section			
Complications	**No. of pts**	**% age**	**95% CI**
Urinary retention	6	12.0	3-21
Backache	7	14.0	4.24

Table-IX. Maternal satisfaction			
Grade of satisfaction	**No. of pts**	**% age**	**95% CI**
Excellent	40	80.0	68-01
Good	05	10.0	2-18
Fair	02	04.0	0-9
Poor	03	06.0	0-12

DISCUSSION

Epidural analgesia has become an established technique in the management of severe labour pain. Proper administration of epidural analgesia offers many advantages for both mother and fetus. With the availability of various local anaesthetics, opioids and infusion techniques, the analgesia can be tailored to the specific needs of mother, fetus and labour. The provision of effective analgesia reduces the inhibitory effect of endogenous maternal catecholamines on uterine contractility, attenuates the maternal acidosis and permits the mother to tolerate augmentation with oxytocin.

Its effect on the progress of labour remains a controversial topic subject to ongoing investigation[9]. Some suggest no effect on frequency of uterine activity[10], other says that block speed up early and second stage induced labour in nulliparous woman[11] still other says that labour is prolonged with it[12,13,14]. In this study no on towards effect was noted on progress of labour in 30% of patients. (14 to 34% with 95% confidence interval) without oxytocin augmentation. In our unit careful attention is paid to correct inefficient uterine action early in labour with oxytocin infusion. Following this policy, after augmentation further 58% (44 to 72% with 95% CI) had smooth progress of labour. This is a significant percentage and is in accordance with a study carried out in 1999[15]. Remaining 12% (3-21% with 95% C of patients had prolonged labour inspite of oxytocin augmentation.

The association between instrumental delivery and perinatal morbidity has been responsible for a reluctance to employ epidural in high-risk deliveries (e.g. twin gestation and breech presentation). In this study all patients were healthy parturients with singleton cephalic presentation. Reported incidence of instrumental deliveries varies from 10-56%. A high incidence of mid cavity forceps deliveries in some series, low forceps or vacuum extractions in others or no observed increase in instrumental deliveries in still others. This wide range is because the techniques used to achieve epidural analgesia over the last four decades have not been uniform e.g. The techniques vary in choice of agent, drug concentration, administration during the second stage and addition of an opioid. Incidence of instrumental delivery in this study was 36%. For mal-rotated head ventouse extraction was done in 8% of patients (0 to 16 % with 95 % CI). In 24 % of patients (12 to 36 % with 95 % CI) Wrigley's Forceps were applied while 4% of patients (0 to 9 % with 95% of CI) were delivered with Neville Barnes. It is now recognized that midcavity rotational foceps (e.g Kiellands forceps) deliveries are strongly associated with increased perinatal mortality because of intracranial hemorrhage or birth asphyxia. where as there is no such association with the use of low and outlet-forceps or ventouse vacuum extraction where the morbidity is confined to facial bruising and cephalohematoma. None of the patient in present study group was applied Kiellands forceps. Same is seen in present study group with >7 Apgar score of neonates in 80%. (69-91% with 95% CI) Incidence of instrumental delivery could be lower with more dilute concentration of local anaesthetic agents and dose-sparing. effect of opioid-local anaesthetic combinations further adds to this reduction. The increasing trend towards the use of bupivacaine in low concentrations reflects a perception that in doing so there will be less motor block and maximization of its property of differential sensory blockade thus providing analgesia without motor blockade, a lower instrumental delivery rate and greater maternal satisfaction. This has been born out by the observation that 0.5% bupivacaine is associated with high rates of malposition (3 times control rate) and

forceps delivery (5 times control rate).

8 % of patients (0 to 16 % with 95 % CI) were ended up in Caesarian section. All Caesarian sections were done due to obstetric causes as studied by various people that the introduction of on-demand labour epidural analgesia service does not increase the rate of cesarean delivery[16] or operative vaginal delivery. It is also concluded that maternal fetal factors and obstetric management not epidural analgesia are the most important determinants of Caesarian section[17], For Caesarian section in all patients same block was extended. In a study carried out by Dr. Sulman Waris in 1997 in which they compared the effect of buprinorphine + .5% bupivacaine with plain bupivacaine. They concluded that patients satisfaction was better in the first group and there was no effect on baby apgar score in both groups[18]. So for caesarean section buprinorphine + .5% bupvacaine was used. In present study group 80% (69- 91% with 95% CI) patients were fully satisfied as studied by Crawford while others experienced painful episodes either continuously or in between. Pain was caused by complications such as unblocked segments, unilateral block and other block regression. This high degree of maternal satisfaction in study group was because all blocks were given by senior anaesthetist and for whole length of time they remained in contact with us.

In the present group non significant fall in B.P. was seen in 34% of patients (21 to 57 % with 95 % CI). Only one patient had major degree of hypotension i.e. > 25mm of Hg. but even that responded well by increasing speed of hartman's infusion and changing posture to left lateral. None of the patients received ephedrine. Shivering was seen- in considerable no of patients 36 % (23 to 49 % with 95 % of CI). It is studied that if fentanyl added to bupivcaine and bupivacaine used in low concentration incidence of shivering can be decreased[19].

In present study group 14% (4-24% with 95% CI) of patients had backache but this tends to be postural and not severe. After six weeks follow up only one patient (0-6 % with 95 % CI) had Backache but none of the patients had neuro logical sequlae. In a study incidence seen was 17.8%[20]. Urinary retention was seen in 12% of patients as shown by some studies that Epidural analgesia significantly increased the risk of postpartum urinary retention[21] but others gave contradictory report that epidural analgesia is not associated with an increased risk for postpartum urinary retention with modern obstetric practice[22].

CONCLUSION

Epidural provides excellent pain relief in great majority of patients. Maternal fatigue and distress with all of its ill effects on labour and puerperium is abolished. Epidural analgesia is quite safe for mother and fetus provided appropriate precautions are taken.

Epidural puncture should be carried out only by experienced persons.
He or she should be readily available to supervise subsequent management.

Competent to deal with occasional life threatening complications. Our work should reassure patients and clinicians that Epidural analgesia does not adversely affect labour. The concept of painless labour has gained popularity in Pakistan. No doubt it is an expensive luxury available in most private hospitals. Government should take measures to provide this facility at all big hospitals. Availability of epidural set at subsidized rate, trained personnel and well-equipped labour room will provide maximum benefit with minimum complications.

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