

SINGLE -DOSE INTRATHECAL ANALGESIA TO CONTROL LABOR PAIN IS A USEFUL ALTERNATIVE TO EPIDURAL ANALGESIA IN CERTAIN CONDITIONS

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Abstract— Background: Labor may be the most painful experience many women ever encounter. pain when unrelieved can have adverse effects on the mother, course of labor as well as on the fetal wellbeing

Objective : To find an easy, safe and effective method to control labor pain with minimal intervention, without affecting the course of labor, measured by assessing the degree of maternal satisfaction, obstetrical and neonatal outcome with prevention of complications.

Study design: Comparison study

Setting: Department of Obstetrics and Gynecology; in corporation with the anesthetic department at Al-Imamain AL-Kadhemain Medical City ; Baghdad, Iraq. from 1st of march 2010 to the 1st of march 2011.

Patient and methods: This study include 150 pregnant women at term, were divided into 3 groups: control group, group received epidural analgesia, group received intrathecal analgesia. We studied obstetrical and neonatal outcome, side effects and complications.

Results: Longer labor time, more operative delivery were in epidural group. shorter labor time, better maternal and neonatal outcome in intrathecal group. Both associated with good pain control.

Conclusion: Single-dose ITN is good substitute for EA specially in women in advanced labor, multiparous or women with suspected uncomplicated labor course ; ITA will offer rapid and significant pain relief without affecting the course of labor.

Index terms- ANALGESIA, Al-Imamain AL-Kadhemain, obstetrical and neonatal outcome, relief.

I. INTRODUCTION

Labor is one of the most painful situations a human can experience. Labor pain when unrelieved can have adverse effects on the course of labor as well as on the fetal wellbeing. According to the American Society of Anesthesiology (ASA) "in the absence of a medical contraindication, maternal request is a sufficient medical indication for pain relief during

labor". Neuraxial analgesia is widely accepted as the most effective and the least depressant method of providing pain relief in labor. (1,2) Pain perception by the parturient is a dynamic process that involves both peripheral and central mechanisms. Many factors have an effect on the degree of pain experienced by a woman during labor, including psychological preparation, emotional support during labor, past experiences, the patient's expectations of the birthing process, and induction or augmentation of labor with oxytocin, however, no doubt that for most women, childbirth is associated with very severe pain, and it often exceeds all expectations.. (3)

The pain associated with the first stage of labor is primarily transmitted by slowly conducting nerves (unmyelinated C fibers) and constitutes visceral pain, which is modulated at the level of the dorsal horn of the spinal cord gray matter. Visceral pain is typically dull or aching in character. The fibers travel in the lumbar and lower thoracic sympathetic chains to enter the spinal cord through the white rami communicants' associated with the T10 through T12 and L1 nerves. Early in labor, the pain of uterine contractions is transmitted predominantly through the T11 and T12 nerves. The motor pathways to the uterus leave the spinal cord at the level of T7 and T8 vertebrae. Theoretically, any method of sensory block that does not also block motor pathways to the uterus can be used for analgesia during labor.(4, 5)

Pain with vaginal delivery arises from stimuli from the lower genital tract, quickly conducting nerves (myelinated A delta fibers) transmit impulses related to the second stage of labor, resulting in somatic pain. These signals typically undergo little modulation before arriving at the cerebral cortex and are perceived as sharp or burning in quality. These are transmitted primarily through the pudendal nerve, the peripheral branches of which provide sensory innervation to the perineum, anus, and the more medial and inferior parts of the vulva and clitoris. The pudendal nerve passes beneath the posterior surface of the sacrospinous ligament just as the ligament attaches to the ischial spine. Pudendal Nerve and Vessels, sensory nerve fibers of the pudendal nerve are derived from ventral branches of the S2 through S4 nerves. (6,7)

II. ANALGESIA AND SEDATION DURING LABOR

The ideal analgesic technique in labor should: Provide rapid, effective and safe pain relief for all stages of labor. Not compromise maternal vital physiology or normal activity. Not compromise fetal vital physiology or well-being. Not hamper the normal processes of labor. Be flexible enough to convert to anesthesia for urgent operative delivery or other intervention, e.g. manual removal of placenta. Meeting such an ideal would leave the mother awake, alert, comfortable and able to void, bear down, and, if desired, even ambulate throughout labor. The techniques provide labor analgesia includes: Non regional techniques for labor analgesia and. Regional techniques for labor analgesia..(8,9)

III. THE NON REGIONAL TECHNIQUES FOR LABOR ANALGESIA; INCLUDES

A. *Non-pharmacological Methods. Advantages of non-pharmacological techniques include their relative ease of administration and minimal side effects. A selection of non-pharmacological techniques are listed below:*

- Transcutaneous electrical nerve stimulation (TENS)
- Relaxation/breathing techniques
- Temperature modulation: hot or cold packs, water immersion
- Hypnosis • Massage • Acupuncture • Aromatherapy.(9)

2. Pharmacological Methods;

A. Inhalational Methods; 1.Nitrous oxide 2.Inhalation of halogenated agents In the 19th century Chloroform and Ether were used. Now a day, several volatile agents have been inhaled intermittently for labor analgesia. Their use is limited by technical difficulties in their safe administration .(9,10,11)

B. Systemic Analgesics

1) *Meperidene(Pethidinehydrochloride)* is commonly administered IM. at a dose of 1 mg/kg. Meperidine, remains popular in many obstetric units, is easy to administer and may be a useful analgesic modality where other methods are not available or are contraindicated. 2.*Morphine* shares many of the side-effects of meperidine and rapidly crosses the placenta; however, its metabolites do not have convulsant effects. The dose used for maternal analgesia is 0.1–0.15 mg/kg.(9) Due to its water solubility, morphine has a much longer duration of action when administered intrathecally. Early studies with high doses (2 mg) showed good analgesia that lasted 8

hours, but there were many side effects. Current doses around 0.2 mg give good analgesia that lasts more than 4 hr. There are fewer side effects at this much lower dose, which can also relieve lesser postpartum pain for more than 8 hr. (12) 3.*Diamorphine* a more potent drug than meperidine, used for labor analgesia in the UK. It is administered IM (dose of 5.0-7.5 mg) . 4.*Fentanyl* a highly potent phenylpiperidine derivative, has a rapid onset of action. It has a longer terminal half-life than both meperidine and morphine, and repeated dosing may result in drug accumulation in both the fetus and the mother. Advantages include absence of active metabolites and rapid onset of action, making it useful for patient-controlled analgesia.(9)

Naloxone Is the current drug of choice for the treatment of opioid overdose. In mild cases, a single dose (100–400µg) may be sufficient to antagonize the effects of opioid analgesics. The duration of effective antagonism may be limited to about 30–45 min., and since most agonists outlast this effect further bolus doses or an infusion are required. Smaller doses(0.5–1.0 µg/ kg) may be used to reverse respiratory depression without significantly affecting the level of analgesia. A doses of (1–2mg) may be required to antagonize severe opioid overdose) .(13)

Regional Techniques For Labor Analgesia;

1.Lumbar Epidural Analgesia (EA): Relief of labor and childbirth pain, including cesarean delivery, can be accomplished by injection of a local anesthetic agent into the epidural or peridural space (Fig.2). This potential space contains areolar tissue, fat, lymphatic, and the internal venous plexus. (4).

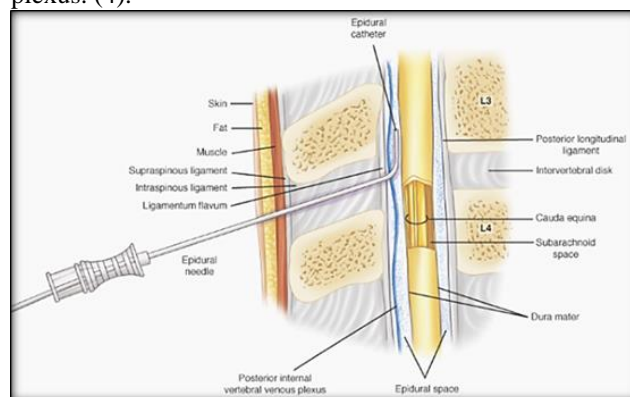


Fig. 2 Epidural And Subarachnoid Space.(4)

Epidural analgesia is unique in its ability to provide pain relief in that it blocks both visceral and somatic pain stimuli and therefore can provide adequate analgesia for all stages of labor. Analgesia is achieved by the instillation of epidural anesthetic agents that block afferent impulses at the level of the nerve root. However, since anesthetic receptor blockade is nonspecific, epidural anesthesia also blocks efferent signals, resulting in significant motor blockade .EA technique includes: Single-shot administration , Continuous epidural

infusion (CEI) and Patient-controlled epidural analgesia (PCEA). (5,9)

2) Intrathecal Analgesia (ITA) or Spinal Analgesia:

Introduction of a local anesthetic into the subarachnoid space to effect analgesia has long been used for delivery. Advantages include a short procedure time, rapid onset of blockade, and high success rate..(4,14)

The intrathecal space occupies the area between the Dura mater and the spinal cord through which cerebrospinal fluid circulates. Opioid receptors are densely concentrated at the level of the substantia gelatinosa of the dorsal gray spinal matter. Intrathecal narcotics specifically bind to opioid receptors at this level and inhibit transmission of afferent visceral pain impulses. Since visceral pain is modulated at the level of the dorsal horn, intrathecal narcotics provide adequate relief of visceral pain associated with the first stage of labor but do not affect somatic pain associated with perineal stretching during the second stage of labor. (5,15)

Single injection spinal opioids with or without local anesthetics may be used to provide effective, although time-limited, analgesia for labor when spontaneous vaginal delivery is anticipated. A local anesthetic may be added to a spinal opioid to increase duration and improve quality of analgesia. The ASA Task Force noted that the rapid onset of analgesia provided by single injection spinal techniques may be advantageous for selected patients such as those in advanced labor.(14)

An excellent approach has been described by Leslie. ITA should be characterized as a single treatment that attempts to achieve a 4-hr window of ambulatory pain control for laboring women. Repeat ITN injections are ineffective due to narcotic tachyphylaxis, techniques includes:

Single-shot administration, Continuous intrathecal (spinal) analgesia (CSA). (12,1516)

3) Combined Spinal-Epidural (CSE) Analgesia:

CSE provides the advantages of a spinal (speed of onset) with the ability to prolong labor analgesia with an epidural catheter.(9)

4) Caudal Analgesia: Used since 1901 to provide anesthesia and analgesia (pain relief) below the umbilicus.(17,18)

5) Pudendal Nerve Block: The pudendal nerves, derived from the lower sacral nerve roots (S2 to S4), supply the vaginal vault, perineum, rectum, and parts of the bladder. The nerves are easily anesthetized transvaginally where they loop around the ischial spines. 10 ml. of dilute local anesthetic solution deposited behind each sacrospinous ligament can provide adequate anesthesia for outlet forceps delivery and episiotomy repair.(19)

6) Paracervical Block: Bilateral paracervical block interrupts transmission of nerve impulses from the uterus and cervix during the 1st stage of labor.(19)

7) Paravertebral Lumbar Sympathetic Block: interrupts the painful transmission of cervical and

uterine impulses during the 1st stage of labor. Neuraxial (epidural, combined spinal-epidural or spinal) techniques provide effective labor analgesia and are associated with a high degree of patient satisfaction.(19,20)

The contraindications To Regional Anesthesia; Patient refusal despite adequate explanation. Uncooperative patient (obtunded conscious, for example). Anticoagulation or coagulopathy. Untreated hypovolaemia (particularly applies to spinal anesthesia). Major infection.

Trauma or burns over injection site. Raised intracranial pressure (particularly central blockade).(21 22)

The complications Of Regional Anesthesia ; No pain relief, also called block failure, Backache, Hypotension, Post Dural Puncture Headache (PDPH). Hearing Loss, Systemic Toxicity: CNS and cardiovascular.

Total spinal anesthesia, Neurologic Injury ~0.03% to 0.1%. Transient Neurologic Symptoms (TNS). Spinal and Epidural Hematoma,

Central Nervous System Infections, Catheter Migration (in epidural).

Arachnoiditis. Maternal Fever, Bladder Dysfunction (in intrathecal). Pruritus (in intrathecal).(23, 24, 25,26 ,27 ,)

Aim of study

The purpose of this study is to find an easy, safe and cost effective method to control labor pain with minimal intervention, without affecting the course of labor, measured by assessing the degree of maternal satisfaction, obstetrical and neonatal outcome with prevention of complications .

Patients and Methods;

A case control comparison study conducted on 150 pregnant women admitted to the department of Obstetrics and Gynecology at Al-Imamain AL-Kadhmain Medical City; in corporation with the anesthetic department ; for a period of one year from 1st of march 2010 to the 1st of march 2011.

An informed consent was obtained from all participating women.

8) •**INCLUSION CRITERIA** ; Parturient approval. Age: 15 to 35 year of age . Normal physical and mental status. In spontaneous labor at term of pregnancy. Vertex-presented fetus (singleton pregnancy). Cervical dilatation from 3to5cm (active phase of labor). Intact amniotic membrane.

9) **EXCLUSION CRITERIA:**

Patient refusal Presence of preeclampsia, eclampsia, coagulopathy, infection or sepsis(local or systemic). Presence of previous neurologic problems involving the bladder, bowel, or lower extremities. History of back surgery. Ongoing symptoms of disc disease or chronic back pain.

10) •**ANALGESIC PROTOCOL:** The parturient will be equally and randomly distributed between groups in this study. After obtaining written consent, demographic data, including maternal age, height, weight, gravity, parity (25primiparous and 25multiparous in each group), and their history will be recorded.

All participants will undergo a baseline focused lower extremity neurologic examination. Patients will be specifically questioned about their current bladder and bowel habits. Any finding of significant neurologic abnormality will be excluded from the study

The three groups will be handled as follows:-1. Control Group.2. Continuous Epidural Analgesia Group.3. Single Intrathecal Analgesia Group.

11) MEASUREMENTS; On arrival to labor room a 16-18 IV cannula was inserted in a good vein for all parturient. Epidural and spinal groups received preload with 500-1000 ml. crystalloid solution before conducting analgesia. As parturient approved for analgesia, the following baseline data will be measured

for all participants: maternal blood pressure, pulse rate, respiratory rate, temperature, fetal heart rate, and verbal analogue scores for pain (Patient satisfaction regarding pain control assessed by asking the women on scale from 1-5 "1 for best control and 5 for severe pain" and recorded), nausea, and pruritus. The progress of labor and time will be monitored by using a partograph.

12) GROUP 1 CONTROL GROUP; This group receive no analgesia in 1st stage of labor.

13) GROUP 2 CONTINUOUS EPIDURAL ANALGESIA (EA); After sterile preparation and draping of the back, a 20-gauge catheter will be inserted 3 – 5 cm into the epidural space via a Tuohy needle (at the lumbar area) L3 – L4, L4 – L5, or L2 – L3 interspace using the midline or paramedian approach. After securing the catheter, the parturient will be placed supine with head up approximately 45° and left lateral uterine displacement. An initial 10-ml. bolus of bupivacaine 0.125% with 5 µg./ml. fentanyl will be given followed by a continuous infusion of bupivacaine 0.125% with fentanyl 2µg/ml. at a rate of 4 – 10 ml./hr. till a breakthrough pain or decision for instrumental delivery, where bupivacaine 0.25% will be given with a maximum 15ml/hr. If inadequate pain relief persists after 15 min from the initial bolus, bupivacaine 0.25% will be given to a maximum of 10 ml. then infusion will be started as described before. In case of inadequate pain relief after one hour from giving the maximum dose of bupivacaine, the catheter will be removed and analgesia will be provided as clinically appropriate.(16)

14) GROUP 3 SINGLE INTRATHECAL ANALGESIA (ITA); The parturient is seated, and the L3-4, L4 – L5 interspace is identified by palpating the superior iliac crests and extending this level to the posterior midline. The area is then cleansed with an antiseptic solution, and sterile drapery is applied. The midline skin is anesthetized with 1 % lidocaine. An 18-gauge introducer needle is placed in the interspinous

ligament of the desired vertebral interspace. For Dural puncture, a "pencil-point" 25-gauge spinal needle (Sprotte, Whitacre, Quincke) is inserted into the appropriate interspace, [(fentanyl 25 µg., bupivacaine 2.5 mg. and morphine 250 µg.)] (18) are administered in to spinal space then needle removed and sterile dressing done, The analgesic effect should start within 5 min. from injection. Metochlpromid is given to prevent nausea and vomiting.(16)

Modified Bromage Motor Blockade Score Description:(2)

(0) No paralysis, raises extended leg, full flexion of knee and ankle

(1) Inability to raise extended leg, able to move knee

(2) Inability to flex knee, able to flex ankle

(3) Inability to move lower.

After injection of medication, the following data will be obtained every 5 min. for the first 20 min., and then each 30 min. until delivery: maternal blood pressure, heart rate, respiratory rate and temperature; fetal heart rate; and maternal verbal analogue scores for pain, nausea, and pruritus.

Any systolic blood pressure below 100 mmHg occurring during the study

will be recorded, and the amount of any systemic vasopressor given will be noted, like ephedrine and phenylephrine. In addition, Bromage score will be recorded at 60 min and at each subsequent 2-h interval until delivery.

At delivery, the type of delivery will be recorded, and if the delivery is by caesarean section, the indication will be noted and recorded.

The total dose of each medication given will be calculated. Neonatal assessments will include 1- and 10-min Apgar scores and neonatal weight. The nursery to which the neonate will be admitted will be recorded, and presence or absence of any fetal abnormality.

At the time of catheter removal, the ease of removal will be rated as easy,

moderately difficult, or difficult and the intact removal will also be recorded.

Before discharge all patients will be visited. At these visits, the focused

neurologic examination will be repeated, and patients will be asked about

symptoms of headache and back pain as well as specific complaints involving the bowel and bladder dysfunction. Participants will be asked to rate their satisfaction with their pain relief as poor, fair, good, very good, or excellent. Women will be also asked whether they will choose this method of pain control again for the subsequent delivery.

Each participant will be contacted by telephone at 7 – 10 days after delivery and again at approximately 30 days after delivery.

During these phone calls, a questionnaire will be prepared in which patients will be asked about any new neurologic symptoms like pain in one or both legs, numbness in the groin, lower extremity muscle weakness or loss of sensation, bladder

or bowel disturbances, headache, or back pain that develops since discharge.

Statistical analysis;

Data will be analyzed using SPSS version 16 and Microsoft office excel 2007.

Numerical data were expressed as average + SD (standard deviation). Numerical data were expressed as number (no.) and percentage (%). Numerical data were analyzed using student T_test and ANOVA.

Numerical data were analyzed using CHI square. P value <0.05 was considered significant.

IV. THE RESULTES ;

Table -1

Shows the demographic characteristics of control and study groups which includes; maternal age, weight, height ,body mass index (B.M.I.), cervical dilatation, fetal heart rate and baby weight. All shows no significant difference. There is significant difference in the incidence of oxytocin used for labor augmentation among control and study groups, the P value is <0.001

Table (1) Demographic distribution of control and study groups

Characteristics	Group (1) Control N= 49	Group (2) Epidural N = 48	Group (3) Intrathecal N = 50	P
Age (years)	24.56 ±4.24	24.58±4.82	24.06±3.77	0.9 NS
Weight (Kg)	84.74±8.72	84.30±8.96	85.44 ±7.34	0.904 NS
Height (cm)	160.74±2.54	161.06±3.03	161.02 ±2.10	0.95 NS
BMI (Kg/m ²)	32.75±2.71	32.50±3.25	32.93 ±2.37	0.9 NS
Cervical dilatation(cm)	4.1±0.5	4.3±0.6	4±0.9	0.95 NS
Oxytocin use	26 (53%)	36 (75%)	17 (34%)	<0.001 *
Fetal heart rate (beat/min.)	139±21	139±20	140±23	0.97NS
Baby weight (gram)	3261 ±345.8	3276 ±449.8	3252 ±333	0.96NS

NS not significant.

* significant relation

Fig. 1; Shows the duration of labor (total time, first stage and second stage) among control and study group.

fig. 1 The duration of labor (total time, 1st stage, 2nd stage) among control and study groups.

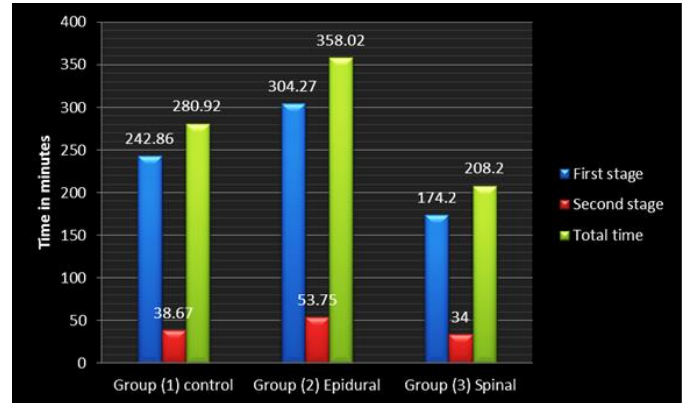


Table -2

Shows the duration of labour among control and study groups.

There was significant difference in the duration of 1st stage of labor among control and study groups. The P value was <0.001 .

There was significant difference in the duration of 2nd stage of labor among control and epidural group. The P value was <0.005 .

There was no significant difference in the duration of 2nd stage of labor among control and intrathecal group. The P value was 0.904 .

There was significant difference in the duration of all stage of labor among epidural and intrathecal group. The P value was (<0.001,0.003) respectively.

Table 2. Comparison between control and study groups regarding duration of labour.

Time (Min.)	Group (1) Control N = 49	Group (2) Epidural N = 48	Group (3) Intrathecal N = 50	P1	P2	P3
First stage	242.8±63.6	304.2 ±57	174.2±56.7	<0.001*	<0.001*	<0.001*
Second stage	38.6±21.6	53.7±23.5	34 ±23.8	0.005*	0.904NS	0.003*
Total time	280.9±78.4	358 ±74.5	208.2±76.8	<0.001*	<0.001*	<0.001*

P1: comparison between group 1 and 2.

P2: comparison between group 1 and 3.

P3: comparison between group 2 and 3.

* Significant relation.

NS not significant.

Table -3

Shows the time duration of labor in primiparous and multiparous women in the control and study group.

Table 3.The duration of labor among control and study groups in primiparous and multiparous women.

Time (min.)	Primiparous women			Multiparous women		
	Group (1) Control N= 24	Group (2) Epidural N = 24	Group (3) Intrathecal N = 25	Group (1) Control N= 25	Group (2) Epidural N = 24	Group (3) Intrathecal N = 25
First stage	290±34.8	345.4±34.3	221.4±25.3	197.6±50.7	263±44	127±35.8
Second stage	55±18.6	70±21	50±23.4	23±9	37.5±11.9	18±8.8
Total time	343.75±40	415.4±49.7	271.4±46.3	220.6±54.9	300.6±44.9	145±39.9

Table -4

Shows mode of delivery among control and study group.

In the control group:

One case delivered by assisted vaginal delivery(AVD) due to prolonged 2nd stage.

In the epidural group:

One case delivered by cesarean section (C/S) (due to deep transverse arrest)

Three cases delivered by AVD (one cases for poor maternal efforts and two case of fetal malposition).

In the intrathecal group:

One case delivered by C/S (arrest of descend at -1 station at 2nd stage of labor).

There no significant difference in incidence of number of delivery by a cesarean section among control and study groups.

The number of cases delivered by AVD was more in the epidural group.

Table 4. Mode of delivery among the three groups .

Mode of delivery	Group (1) control N=49	Group (2) Epidural N=48	Group (3) Intrathecal N=50
Assisted vaginal delivery	1	3	0
Cesarean section	0	1	1
Vaginal delivery	48	44	49

Table-5

Shows level of satisfaction and degree of pain control among study groups. Scale of pain ranging from no pain(1) to severe pain (5).

There was no significant difference in the degree of pain control among women in the two groups.

Table 5. Level of satisfaction among study groups

Level Of Satisfaction	Group (2) Epidural N=48	Group (3) Intrathecal N=50	P
1	27	28	0.96 NS
2	18	19	
3	3	3	
4	0	0	
5	0	0	

NS not significant.

Fig.2;

Shows ABGAR score in 1min. of neonates delivered from women in the control and study groups. There no significant difference in ABGAR score in 1min. among all groups.

Note ABGAR equal or more than 7 considered normal, and for discharged from neonatal care unite (NCU) the ABGAR should be 10 at 10 min. according to our hospital NCU protocol.

Fig.2Comparison regarding ABGAR score in 1min.

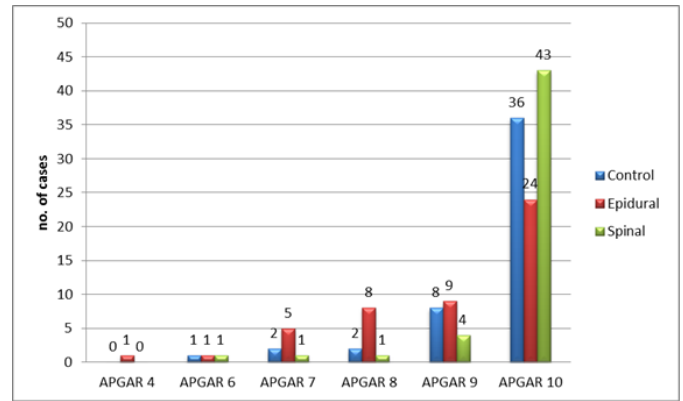
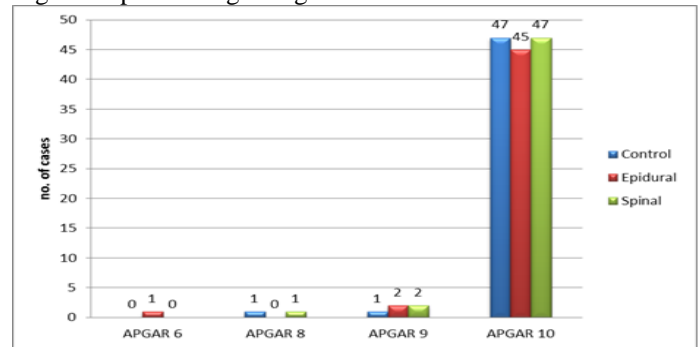


Fig.3

Shows ABGAR score in 10min. of neonates delivered from women in the control and study groups. There no significant difference in ABGAR score in 10min. among all groups.

Fig.3Comparison regarding ABGAR score in 10min.



V. THE DISCUSSION;

In a scholarly review, Lowe (2002) emphasized that the experience of labor pain is a highly individual reflection of variable stimuli that are uniquely received and interpreted by each woman. These stimuli are modified by emotional, motivational, cognitive, social, and cultural circumstances. (28)

In this study we found that there is significant increase in duration of labor in the epidural group (In the first stage of labor, the time exceeded the control group by 61.41min.,in the second stage the time exceeded the control group by 15.08 min.) .

In our study, there was significant reduction in oxytocin use (p value <0.001) and the time duration of first stage of labor was significantly reduced in group received ITA compared to control group (P value<0.001)the first stage of labor was shorter by 68 min. Wong CA et al (2005)(29) observed that analgesia injected into the intrathecal space seems to cause more rapid cervical dilation and to shorten the first stage of labor by as much as 100 min., D'Angelo et al (1994)(30) and Mark et al (1997)(5) found that ITN offer rapid pain relief to women in labor without causing appreciable motor or sympathetic blockade.

There was no significant difference in duration of second stage of labor in the control and the ITA groups that's the P

value 0.904(in ITA group it was less by 5min.), because the Pain during the second stage of labor is a combination of visceral and somatic pain from distention the perineal tissues. ITN are not particularly effective for this pain, but local anesthetic agents, are beneficial and can be added to spinal cocktails.(12)

In our study we noticed that there was no difference in C/S rate among the control group and study groups. Wong et al (2005)(29) found that regional analgesia does not increase the rate of caesarean delivery. Michael C. Klein(2006)(30) found that EA if given before the active phase of labor it has more than doubles the probability of receiving a C/S but if given in the active phase of labor, EA does not increase rates of C/S. Rucklidge (2005)(9) said that EA does not increase the risk of C/S.

In our study we found that there is increase in incidence of AVD in group received EA due to motor block which caused both poor maternal efforts and fetal malposition. Rucklidge (2005)(9) said that Women with complicated, painful labor may request EA more frequently and the prolongation of labor might lead obstetricians to perform an operative delivery more frequently in order to shorten the 2nd stage of labor.

Robert D. Vincent (1998)(31) found that the maintenance of profound EA beyond complete cervical dilation will increase the duration of the 2nd stage of labor or increase the probability of an instrumental vaginal delivery, especially in nulliparous patients, and it is less common to initiate EA when cervical dilation exceeds 8 cm. especially in multiparous women. E Lieberman et al (2002)(32), Sharma et al (2004)(33)and Halpern et al(1998)(34) all reported that women receiving epidural analgesia were twice as likely to have an instrumented delivery.

We found that there was no difference in level of satisfaction between the study groups regarding degree of pain control. BL Leighton et al(1989)(35) found in his study that nulliparous women were satisfied with their analgesia ITA. Herpolsheimer et al (1994)(36)) and Zapp J et al (1995)(37) said that Some multiparous patients preferred ITA to the EA they had received during previous labors. ,Minty et al(2007) (12)agree in his study with the results of ASA guidelines (1999)(38) which suggest that analgesia provided by ITN is equivalent to epidural local anesthesia.

We found no differences in ABGAR score in 1min. and 10min. among control and study groups, but babies delivered from mother received EA needed admission for observation in NCU for short period then discharged without short term sequels. Rucklidge (2005)(9) demonstrated a significant increase in the temperature of mothers receiving EA may cause rise in temperature in the neonate but it remain unclear. E Lieberman et al (2002)(32)and Howell CJ (2005)(20) found that EA associated with more intrapartum maternal fever. Mardirosoff (2002)(39) show no changes in neonatal APGAR score. ITA When compared with intravenous analgesia, is associated with high Apgar scores and good neonatal outcomes, Wong et al (2005)(29).

VI. CONCLUSIONS

The ideal labor analgesia should provide effective pain relief throughout the different phases of labor while tailored to the specific needs of the individual parturient.

Women in advanced labor, multiparous or women with suspected uncomplicated labor course ; ITA will offer rapid and significant pain relief without affecting the course of labor, with good maternal and neonatal outcome. The technique is identical to a lumbar puncture and can be experienced by obstetrician with minimal anesthetic involvement specially in area were EA is not available.

EA is a safe and effective method of relieving pain for all stages of labor, but is associated with longer labor, more operative intervention, and increases in cost.

RECOMMENDATIONS;

Education programs should be available for all women to understand the options present for control labor pain , the advantages and disadvantages of each methods should be discussed in easy term, so labor will be a pleasant memory rather than a nightmare to mother.

Control labor pain will decrease C/S rate ,since many women find a C/S a method to escape from the pain.

Training courses for obstetricians to illustrate the ITA technique, so they can use it by themselves with their patients to insure better results, decrease the side effects and prevent complications.

VII. ACKNOWLEDGMENT

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ABBREVIATION

1 st	First
2 nd	Second
ASA	American Society of Anesthesiology
AVD	Assisted vaginal delivery
B.M.I.	Body mass index
CEI	Continuous epidural infusion
CHD	Congenital heart disease
CS	Cesarean section
SD	Standard deviation
CSA	Continuous spinal (intrathecal) analgesia
CSE	Combined Spinal-Epidural
cm.	Centimeter
FHR	Fetal heart rate
Fig.	Figure
hr.	Hour
IM	Intramuscular
ITA	Intrathecal analgesia
ITN	Intrathecal narcotics
kg	Kilogram
LOA	Left occiput- anterior
m ²	Square meter
µg	Microgram
mg.	Milligram
min.	Minute
ml.	Milliliter
mmHg	Milliliter mercury
MU	Montevideo unites
NCU	Neonatal care unite
no.	Number
NSAID	Non-steroidal anti-inflammatory drugs
PCEA	Patient-controlled epidural analgesia
PDPH	Post Dural Puncture Headache
ROA	Right occiput- anterior
TENS	Trans cutaneous electrical nerve s stimulation
TNS	Transient Neurologic Symptoms
UK	United kingdom

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