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A COMPARISON OF TRAMADOL AND PETHIDINE ANALGESIA ON THE DURATION OF LABOR AND PREGNANCY OUTCOME

Dr.Ola sabah Ramadhan al obaidi
M.B.Ch.B.,D.G.O./(Obstetric And Gynecology)
Iraq Ministry of Health,Babil Health Directorate,
Alhashmia General Hospital, Babil,Iraq.
aloosh_s88@yahoo.com

Dr. Zaman Sami Shallal
M.B.Ch.B/D.G.O /(Obstetric And Gynaecology)
Iraqi Ministry of Health,Babil Health Directorate
Alaskandaria General Hospital,Babil,Iraq.
Zamansami299@gmail.com

Dr. Walaa Ahmed Kadhim
M.B.ch.B /D.G.O/ (Obstetric And Gynaecology)
Iraqi Ministry of Health,Babil Health Directorate
Alaskandaria General Hospital,Babil, Iraq.
2008lwow@gmail.com

Dr. Ali Qais Abdulkafi
M.B.Ch.B., D.C.H. \ (Pediatrics)
Iraqi Ministry of Health, Kirkuk Health Directorate,
Director of the Technical Affairs Department,
Kirkuk Teaching Hospital, Kirkuk, Iraq.
Newiraqhospital@yahoo.co.uk

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Abstract

The ideal obstetric analgesia would be one that would relieve the pain of childbirth without affecting the strength of uterine contractions. Many countries still use intravenous opioids for this purpose.

Objective: To evaluate and compare the effect of intramuscular pethidine and tramadol on duration of labour, pain relief and delivery. **Methods:** A prospective comparison study was done on 175 women with full-term pregnancies in the middle of labour, who were randomly allocated to two groups. One group was administered 50 mg of pethidine intramuscularly, and the other group was given 175 mg of tramadol intramuscularly. Secondary outcomes were labour time, analgesic effects, maternal side effects, delivery method and neonatal Apgar scores. **Results:** The average duration of labour was significantly different between the two groups. Labour length was shorter in the tramadol group in both the first stage (124 minutes in the pethidine group against 99 minutes in the tramadol group; $P=0.0001$) and the second stage (26 minutes in the pethidine group versus 25 minutes in the tramadol group; $P=0.0001$). Pain ratings and visual analogue scores were statistically significant between the two groups 10 minutes and 1 hour after drug administration, with scores of 5 in the pethidine group versus 7 in the tramadol group ($P=0.0001$); during the first stage, the scores were 7 versus 8 ($P=0.0001$), and in the second stage, they were 8 versus 9 ($P=0.00015$ in the pethidine group versus 7 in the tramadol group; $P=0.0001$). Scores over the first stage were 7 versus 8 ($P=0.0001$) and 8 versus 9 ($P=0.0001$) in the second stage. Pain in women in the pethidine group was lower in comparison to the tramadol group. Significantly different rates of nausea and vomiting (40% vs 22%) and fatigue (31% vs 20%) were found between the tramadol and pethidine groups. The groups exhibited comparable Apgar scores at 1 min (6 vs. 8; $P = 0.01$); however, there was a significant difference at 5 min between the pethidine group and the control group (9 vs. 9; $P = 0.2$). **Conclusion** Both agents may have minor analgesic effects during the first stage of labour.

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Tramadol is an efficient and safe analgesic in labour and seems to shorten the duration of labour and prevent maternal adverse effects compared with pethidine. However, pethidine was found to be more effective in providing analgesia, particularly during the second stage of labour. In resource-limited areas, medication can be used to relieve birth pain instead of an epidural anaesthetic. Purpose of the study: The aim of this study was to evaluate and compare the effects of intramuscularly administered pethidine and tramadol on the duration of the contraction, pain relief and delivery.

Keyword: Pethidine. pain relief, tramadol, delivery, Apgar scores.

Introduction

A foetus can begin its journey from the uterus to the outside world during labour, which is a series of physiological events. Although labour is an ongoing process, it is now structured into three distinct phases to better aid obstetric care. Stage one: the time it takes for the contractions to start and for the cervical dilatation to take place. There are three substages within this stage, which are determined by the degree of cervical dilatation: From the beginning of labour until the cervical dilation slope changes, the latent period occurs. Slow and varied cervical dilatation occurs during this phase; it typically lasts three to eight hours; however, it is shorter in women who have given birth more than once. The second stage, known as the active phase, starts with cervical dilation of around 2 to 4 cm and is characterised by rapid dilation. The duration of this phase can vary, typically lasting between 2 and 6 hours (although it is shorter in multiparous women) and is further divided into an acceleration phase (which is connected with the highest slope) and a deceleration phase.³ The foetal descent phase. (often during the second phase of labour). The second stage of labour begins when the mother's cervical sac has dilated to a complete ten centimetres and ends until the baby is born. During this time, the presenting part descends into the maternal pelvis, and

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the baby is expelled. In women who are not pregnant, this phase shouldn't last more than two hours. In women who are pregnant with multiple babies, it should last one hour. (2) The third stage, which begins at the time of foetal delivery and ends no more than 30 minutes later, is characterised by the separation and evacuation of the foetal membranes and placenta. Some of the most common indicators of placental separation are:

- 1.Extension of the umbilical chord.
- 2-When the placenta separates from the uterine wall, it is indicated by blood oozing out of the vagina.
- 3-A change from a discoid to a globular form in the uterine fundus and an increase in fundal height. (1,

Labor Analgesia an Overview

Due to the fact that the level of pain felt during labour affects both the progress of labour and the health of the foetus, obstetric analgesia can positively impact the delivery process. Therefore, pharmaceutical and occasionally non-pharmaceutical pain relievers are fundamental concepts in contemporary obstetric facilities. Experiencing obstetric pain is a difficult emotional and mental ordeal for both the mother and her doctor. Women who had ongoing postpartum support were less likely to need intrapartum analgesia. Without reducing uterine contraction, these analgesics should be effective enough to alleviate pain. Epidural or spinal analgesia is the standard technique for local anaesthesia during labour. The former uses an indwelling catheter to administer a steady stream of local anaesthetic or a series of injections into the epidural space, whereas the latter uses a single injection into the intrathecal region. The "walking epidural" is a hybrid procedure that combines epidural and spinal analgesia. By combining the rapid pain-relieving effects of a spinal regional block with a persistent epidural block, this approach achieves a double benefit. On top of that, it keeps pregnant women's motor skills adequately intact. Despite the low incidence of problems

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associated with localised analgesia, several patients reported headaches after the procedure. Neurological impairments, epidural haematoma, and deep dural infection are further uncommon consequences.

Continuous labour support and easily administered intramuscular systemic opioid analgesia are two further methods of pain management during labour.

Analgesia, Analgesic Rating Scale

Labour pains for women who have never given birth before look different for those who have given birth multiple times. Especially in cases of inadequate prenatal education, nulliparous women report greater pain levels than multiparous women (6). While multiparous women feel more intense pelvic stage pain from the quick activation of nociceptors around the vaginal vault, vulva, and perineum as well as the fast descent of the foetus, nulliparous women typically feel more sensory pain during the early stages of labour.

The Pain Mechanism During Labour

Uterine contractions, which are a normal and unpleasant part of giving birth, become more frequent and stronger as labour progresses. Visceral and somatic pain are the two main components of labour pain. Cervical dilation is positively correlated with pain intensity, duration, and frequency, and it also increases as cervical dilatation increases.

Internal Agony

During the initial and second stages of labour, it is common. The cervix plays a pivotal role in these stages. It is stretched and distended by the pressure that is transmitted to it, and the excitatory nociceptive afferents that innervate the endocervix and lower segment from T10 to L1 are activated. (8)

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The Mechanism of Abdominal Pain

When unshielded 'C' fibres join forces with sympathetic fibres, they go through the hypogastric, uterine, and cervical nerve plexuses before entering the main sympathetic chain. From there, they go to the white rami communicants linked to the lower segment of T10-L1, where they are responsible for transmitting visceral pain. Subsequently, attach to the spinal cord's dorsal horn via their posterior nerve roots. Some fibres decussate at the dorsal horn level, extending extensively both rostrally and caudally, and this causes poorly localised pain. Bradykinin, leukotrienes, prostaglandins, serotonin, and lactic acid are some of the chemical mediators implicated in this form of pain. The lower abdomen, sacrum, and back may experience pain during early labour, which is referred to as the T10-T12 dermatomes. The sensitivity of this pain to opioid medicines depends on the route of delivery, and it is dull in character.

Back Pain

This pain occurs alongside visceral pain during the latter part of the first stage of labour. Foetal descent causes this discomfort because the pelvic floor, perineum, and vagina are stretched, distended, ischaemic, or torn. The uterine contractions are becoming more frequent and powerful at this point.

The Somatic Pain Pathway

The 'A-delta' fibres, which are few and myelinated, communicate the pain of this type of labour more quickly as the due date approaches. Later on, information is transmitted to the roots of the S2–S4 nerves via the pudendal nerves and the perineal branches of the posterior cutaneous nerve of the thigh. The cutaneous branches of the ilioinguinal and genitofemoral nerves also send afferent axons to L1 and L2 via somatic filaments. When it comes to opiate resistance, somatic pain is worse than visceral pain, and it's also more phoney. You can locate it in the perineal, vaginal, and rectal areas with relative ease. It reaches the neighbouring

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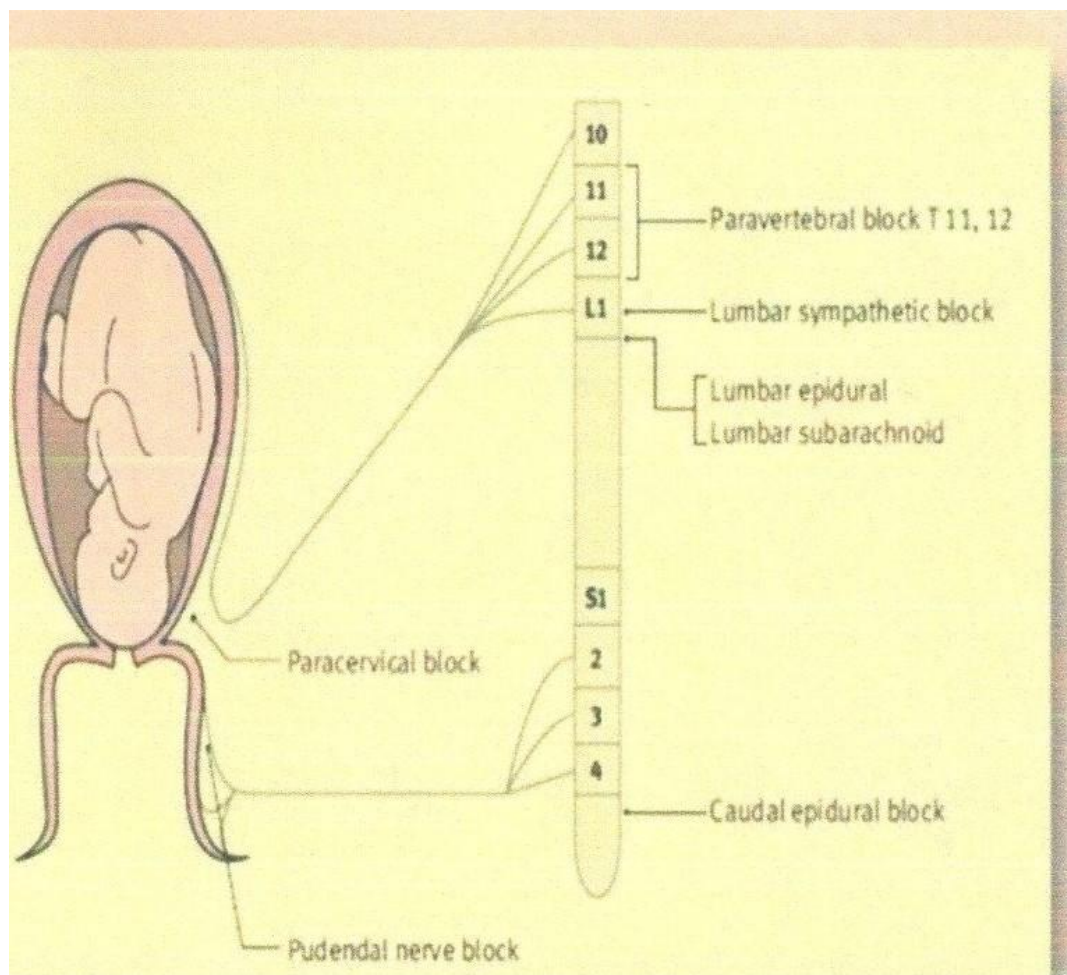
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dermatomes, T10 and L1, through radiation. The dorsal horn neurones receive impulses from visceral and somatic nerve fibres, process them, and send them to the brain via the spinothalamic tract, where they are received by the hypothalamus and limbic systems. This is how the emotional reactions to obstetric pain are explained.



Pain rating scale:

To determine how much pain a patient is experiencing, doctors employ pain intensity scales. To ensure that no one gets hurt, this evaluation is being

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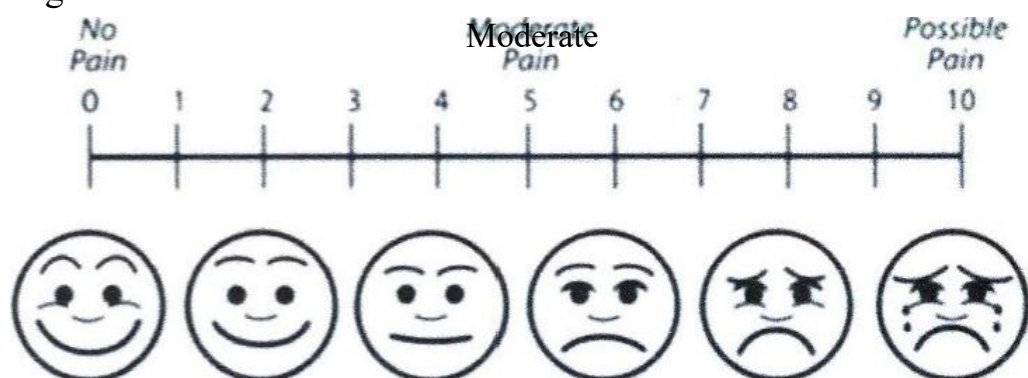


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conducted to ensure everyone's safety and prevent any harm. to ensure everyone's safety. This evaluation is being conducted to ensure everyone's safety.

The "Wong—Baker Faces Pain Rating Scale" is a popular choice because it is both affordable and simple to use. From "no pain at all" to "worst pain possible (10)", the six facial expressions that make up this illustrated scale denote different degrees of discomfort.



Tramadol versus pethidine analgesia during labor:

Despite its widespread usage, the efficacy of pethidine as an analgesic for mothers and a potential danger to their infants' health is a matter of ongoing controversy (13). Oral or intravenous administration is possible. When administered intramuscularly, the analgesic effects kick in within 10–20 minutes and continue for approximately 2–4 hours, which is a shorter duration than morphine (14). Delays in stomach emptying, aspiration, and respiratory depression are among the adverse effects of this analgesic (15). One example of a synthetic counterpart of codeine is tramadol, a centrally acting analgesic that modifies pain impulse transmission by altering monoamine absorption processes; it has a low affinity for opioid receptors (14). The four main routes of administration are the mouth, the rectum, the veins, and the muscles. Its use can alleviate intense acute and chronic pains, such as those experienced after surgery or during pregnancy. with its use. sixteen (16) It takes around six hours for the effects of one oral dose of tramadol (100 mg) to kick in. The liver is responsible for metabolism, and urine

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contains 90% of the metabolic waste. 07) The duration of action is roughly a few minutes and is sustained for 9-10 hours on average because Tramadol is quickly and virtually entirely absorbed after an intramuscular injection. (number one) .The subjective nature of pain tolerance makes it appear like it would be challenging to compare the analgesic effects of different medications (18). whereas both tramadol and pethidine have analgesic effects, pethidine is more likely to sedate the mother, while tramadol reduces the likelihood of newborn respiratory depression (19). Furthermore, research found that administering 50 mg of pethidine intramuscularly during the initial stage of labour was as effective as administering 100 mg of tramadol in terms of pain relief. Pethidine, on the other hand, may be a better pain reliever than tramadol during the second stage of labour (20). Both medications have central nervous system side effects, which include headache, vertigo, lethargy, sleepiness, and sedation. Problems with the digestive tract include anorexia, vomiting, and constipation. Orthostatic hypotension, respiratory depression, and cardiovascular issues are also potential side effects (14). Despite its placenta-crossing potential, tramadol is safe to use during labour, and compared to pethidine, the intramuscular route of tramadol administration seems to produce less newborn respiratory depression (21).

Patients and methods: A prospective comparative study was done in the labour ward of the obstetrics department of Al-mawanea Teaching hospital in Basra city over the period from 1st January 2020 to 1st October 2020. Informed permission was obtained from all women participating in the study prior to study initiation. In 350 pregnant women there were: The inclusion criteria are as follows: Expectant mothers hoping for a vaginal birth, take heart. A pregnancy with only one baby. The gestation is usually between 37 and 40 weeks. Position of the foetal head. No history of cardiac/pulmonary/hepatic/neurological disease. Women who needed obstetric analgesia and scored 5 on the "Wong–Baker Faces Pain Rating Scale" during their pregnancies. Women with at least 2 regular uterine contractions in 10 minutes and a cervical dilatation of at least 4

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centimetres One of the exclusion criteria was antipartum haemorrhage. Symptom of cephalopelvic disproportion. Medical problems or previous uterine scar. Multiple Pregnancy. Misrepresentation. 350 pregnant women were divided into two random groups. Intramuscular medicine was administered to two groups: 50 mg of pethidine was given to one group and 100 mg of tramadol to the other. These analgesic drugs were supplied to prevent respiratory depression in the infant when the cervical dilatation was about 4-6 cm. However, the medicine did not need to be withheld during the second stage of delivery when tramadol was used. The obstetrician prescribed analgesics. Clinical data and analgesic efficacy were analysed. The primary outcome was the duration of labour, measured by partograms completed for each woman in the trial. Oxycocin was administered on demand. Pain was measured with the “Wong-Burkes Faces Pain Rating Scale” (0 = no pain, 10 = most severe pain) after administration of analgesics. The successive ratings of pain were mild pain (0-3), moderate pain (4-6) and severe pain (7-10) [10]. We measured pain before administering the medication and then again 10 minutes later, an hour later and again from the second stage of labour until delivery. The efficacy of the medicine was determined based on these results utilising Wong-Baker Faces Pain Rating Scale. Monitoring of maternal blood pressure, heart rate, respirations and foetal heart rate was performed pre- and post-analgesic treatment. After administering the analgesic drug, side effects such as weariness, vomiting and sedation were recorded and compared between groups. Neonatal assessment was done by assigning an Apgar score at one and five minutes of birth. The attending paediatrician, who knew the type of painkiller given to the mother, reviewed the neonatal physical examination.

Statistical analysis of data was performed using SPSS version 10.0. Results are expressed as mean $\pm$ SD. The p-value was considered significant if it was < 0.05 .

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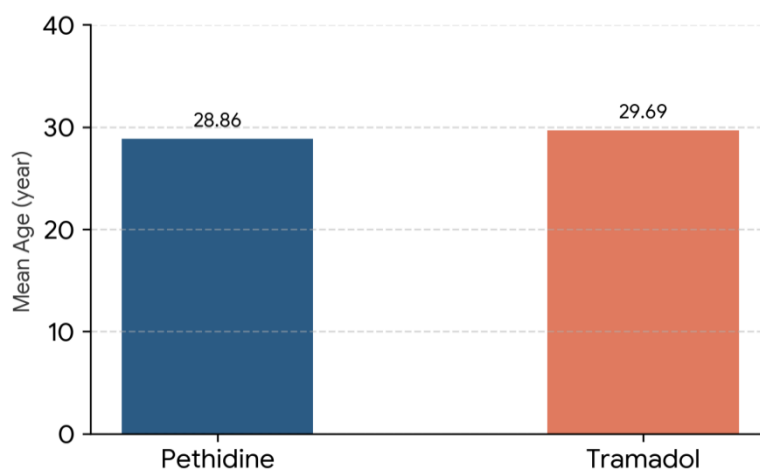
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Tables & Results

Table (1): Maternal Characteristics (mean $\pm$ standard deviation)

Characteristic	Pethidine Mean $\pm$ SD (N=175)	Tramadol Mean $\pm$ SD (N=175)
Age (year)	28.86 $\pm$ 8.02	29.69 $\pm$ 7.74
Gestational age (week)	38.68 $\pm$ 1.11	38.72 $\pm$ 1.01
Systolic blood pressure (mmHg)	124.12 $\pm$ 14.21	119.81 $\pm$ 9.79
Cervical dilatation (cm)	5.88 $\pm$ 0.36	5.99 $\pm$ 0.15
Parity: Primi gravida	74 (42.3%)	68 (38.9%)
Parity: Multi gravida	101 (57.7%)	107 (61.1%)

350 full term pregnant women participated in the study and the two groups were comparable regarding age, parity, gestational age (week), cervical dilatation at initiation of analgesia and systolic blood pressure (mmHg). These were almost similar or close in both groups.



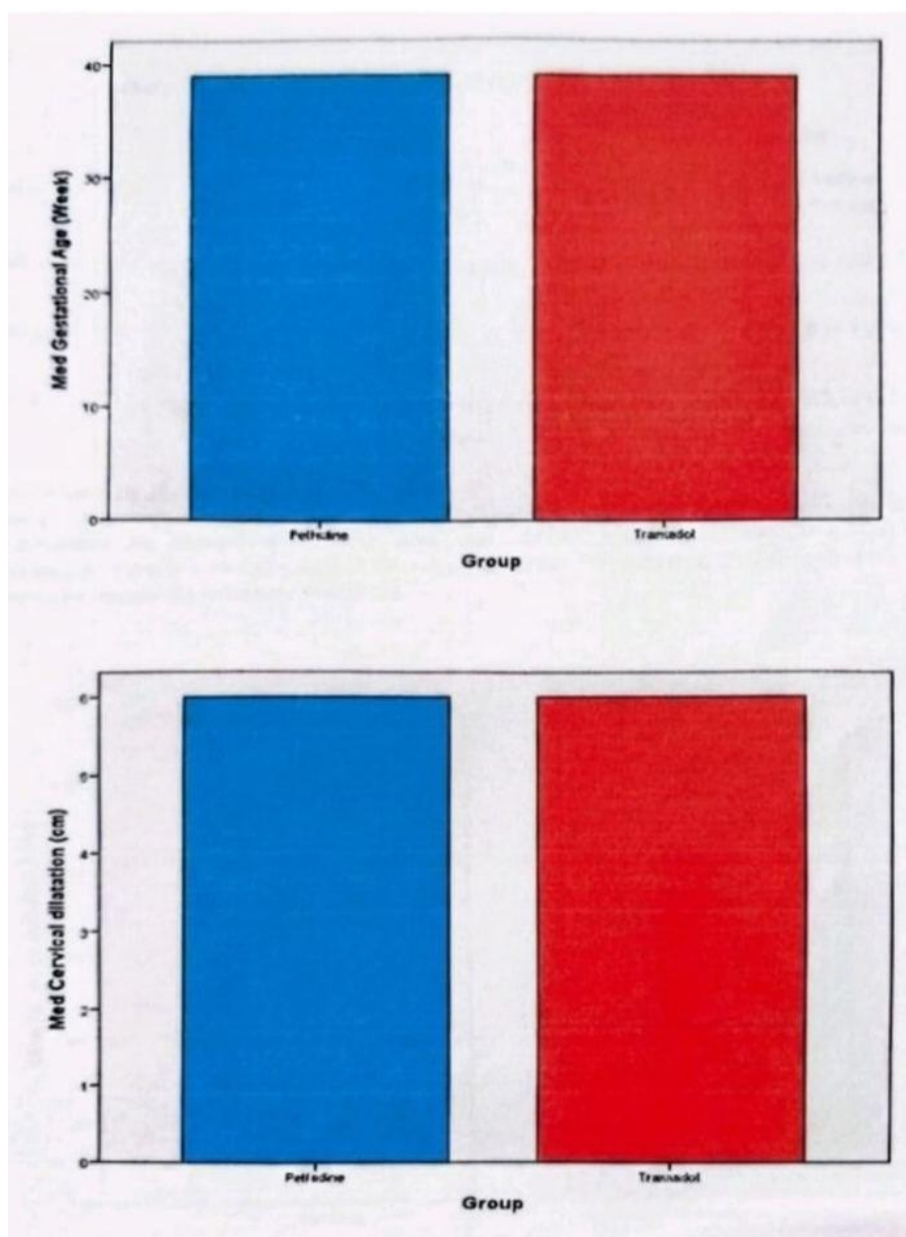
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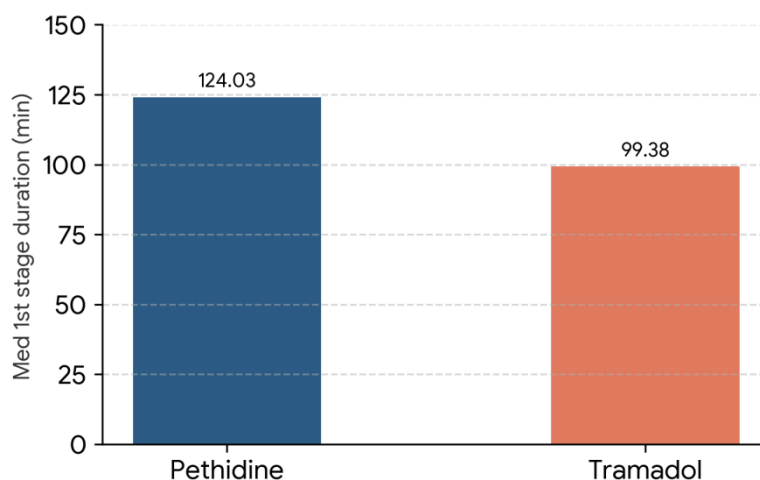
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Table (2): Duration of Labour in Groups (mean $\pm$ standard deviation)

Duration of Stage	Pethidine (N=175) Mean $\pm$ SD	Pethidine Median (Range)	Tramadol (N=175) Mean $\pm$ SD	Tramadol Median (Range)	P-value*
Active first stage (min.)	124.03 $\pm$ 42.61	120 (40-195)	99.38 $\pm$ 39.82	110 (30-185)	0.0001
Second stage (min.)	26.59 $\pm$ 3.55	25 (20-33)	25.19 $\pm$ 4.39	25 (23-30)	0.0001
Total labour (min.)	149.82 $\pm$ 47.41	150 (34-227)	123.02 $\pm$ 41.80	135 (27-210)	0.0001

* P-value less than 0.05 is considered significant.

The duration of labor was shorter in tramadol group, it can be noticed that there were extremely significant differences between the active first, second, and total labor stages, when tramadol group had shorter duration measured in minutes in 1st stage (124 minutes versus 99 minutes; $P=0.0001$), and also for second stage (26 minutes versus 25 minutes; $P=0.0001$).



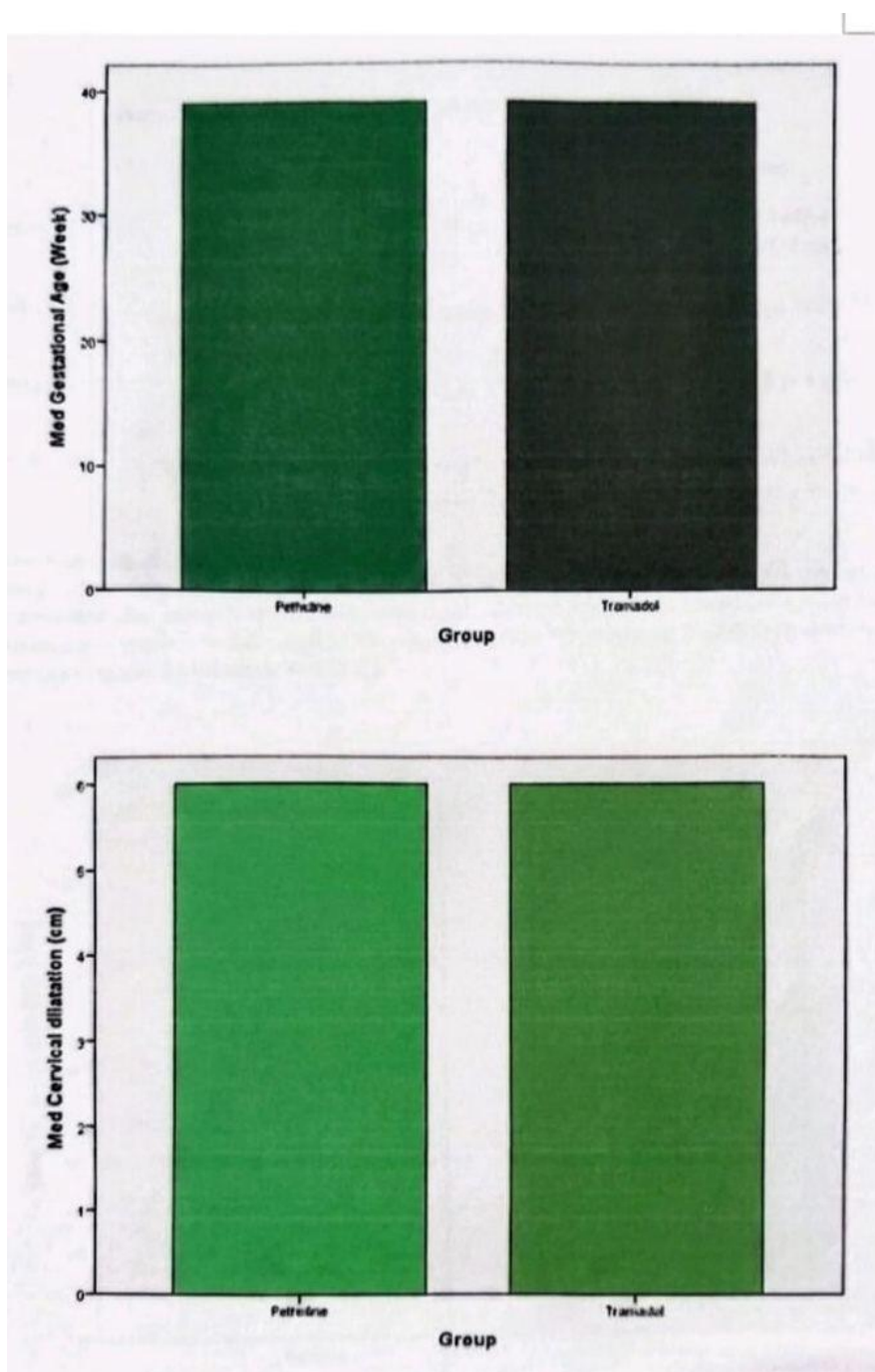
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Table (3): Labour characteristics

Characteristic	Pethidine (N=175) N (%)	Tramadol (N=175) N (%)	P-value*
Use of oxytocin	110 (62.9%)	100 (57.1%)	0.13 (ns)
Mode of delivery:			
1. Normal vaginal delivery	159 (90.86%)	163 (93.14%)	0.32 (ns)
2. Cesarean section	16 (9.14%)	12 (6.86%)	
Indication for Cesarean section:			
1. Meconium-stained amniotic fluid	5 (31.2%)	7 (58.3%)	0.44 (ns)
2. Arrest of descent	7 (43.8%)	3 (25.0%)	
3. Acute fetal distress	4 (25.0%)	2 (16.7%)	

* P-value less than 0.05 is considered significant.

There were no significant statistical differences between the two groups neither in the use of oxytocin (62% versus 57%; $P=0.13$), mode of delivery (159 versus 163; $P=0.32$ in normal vaginal delivery and 9% versus 6%; $P=0.32$ in Cesarean section) nor in the indication for cesarean section (meconium 31% versus 58%, arrest of descent 43% versus 25%, acute fetal distress 25% versus 16%).

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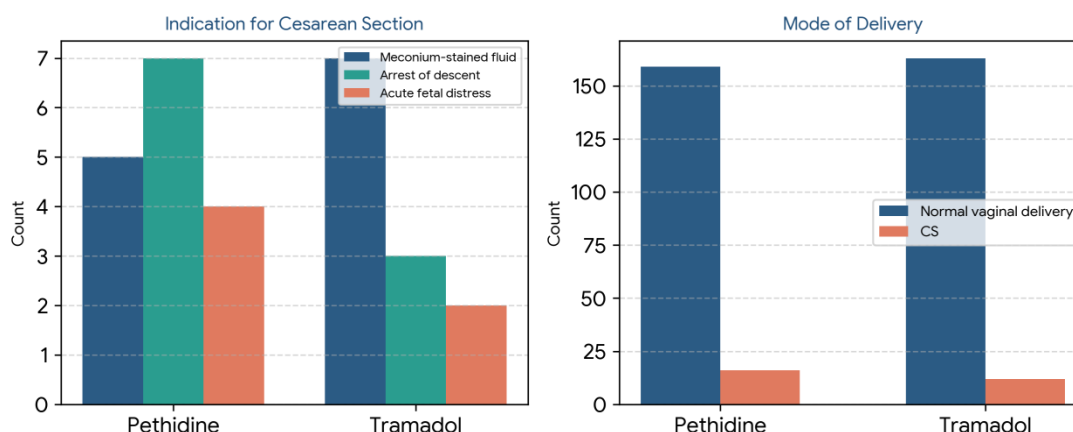


Table (4): Pain score before and after analgesic administration at 10 minutes and 60 minutes and maximum pain scores during the first and second stages

Pain score	Pethidine (N=175) Mean $\pm$ SD	Pethidine Median (Range)	Tramadol (N=175) Mean $\pm$ SD	Tramadol Median (Range)	P-value*
Before	9.38 $\pm$ 0.55	9 (6-10)	9.46 $\pm$ 0.64	10 (7-10)	0.099
At 10 min	5.93 $\pm$ 0.79	5 (4-8)	7.12 $\pm$ 0.67	7 (5-9)	0.0001
At 60 min	6.38 $\pm$ 0.57	5 (4-8)	7.11 $\pm$ 0.49	7 (6-9)	0.0001
Score- Over stage 1	6.88 $\pm$ 0.55	7 (6-8)	7.51 $\pm$ 0.61	8 (6-9)	0.0001
Stage 2	7.54 $\pm$ 0.83	8 (5-9)	9.01 $\pm$ 0.55	9 (8-10)	0.0001

* P-value less than 0.05 is considered significant.

At the beginning of active labor, all women felt severe pain and there were no significant differences between two groups in pain level (9.38 versus 9.46; $P=0.099$), while there were extremely significant differences in pain level after 10 minutes (5.93 versus 7.12; $P=0.0001$), 60 minutes (6.38 versus 7.11;

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P=0.0001), and the whole over stage 1 (6.88 versus 7.51; P=0.0001) and during the 2nd stage (7.54 versus 9.01; P=0.0001) when the pain level was less in the pethidine group.

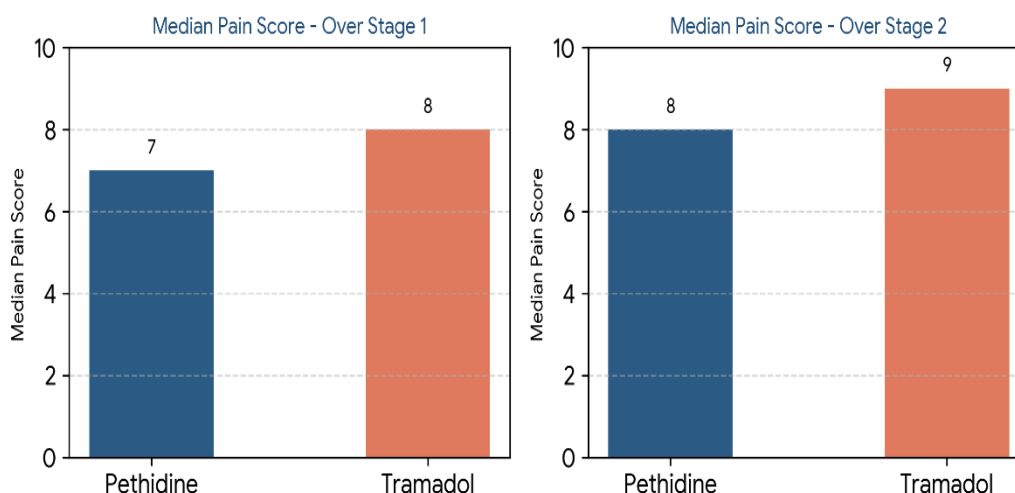


Table (5): Effects of analgesic medication on women in both groups

Side effect	Pethidine N (%)	(N=175)	Tramadol N (%)	(N=175)
No side effect	20 (11.4%)		23 (14.3%)	
Dizziness	30 (17.1%)		25 (14.3%)	
Drowsiness	55 (31.4%)		35 (20.0%)	
Nausea and vomiting	70 (40.0%)		40 (22.8%)	

There was a significant higher incidence of nausea and vomiting (40% versus 22%), drowsiness (31% versus 20%) and dizziness (17% pethidine group compared with tramadol group).

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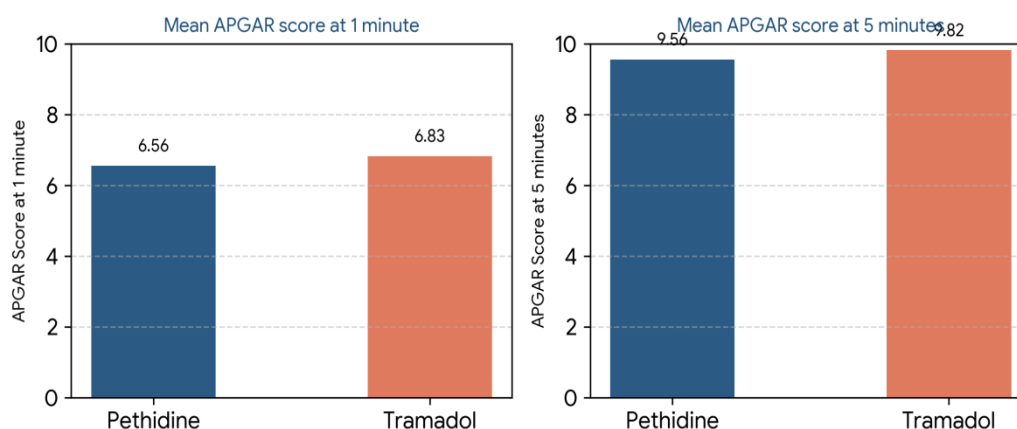
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Table (6): Newborn APGAR scores in both groups

APGAR Score	Pethidine (N=175) Mean $\pm$ SD	Pethidine Median (Range)	Tramadol (N=175) Mean $\pm$ SD	Tramadol Median (Range)	P-value*
At 1 min	6.56 $\pm$ 1.01	8 (6-10)	6.83 $\pm$ 0.90	10 (7-10)	0.03
At 5 min	9.56 $\pm$ 1.22	10 (8-10)	9.82 $\pm$ 0.60	10 (8-10)	0.29

* P-value less than 0.05 is considered significant.

There were significant differences between two groups in APGAR scores for newborn babies, there were significant difference at 1 minute for pethidine group (6.56 versus 6.83; P=0.03), while there were no significant differences at 5 minutes (9.56 versus 9.82; P=0.29) between both groups.



Discussion

Recently, the obstetric community has urged research into creative techniques to shorten labour and avoid caesarean sections. In women who prefer not to have epidural analgesia but still require analgesia, injectable opioids may be easier to administer and more cost-effective. (1) The demographic characteristics of the

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two groups were compared, and the mean maternal age in years was 28.86 in the pethidine group and 29.69 in the tramadol group. The mean gestational age at delivery was 38.68 weeks for the pethidine group and 38.72 weeks for the tramadol group. At recruitment, cervical dilatation was 5.88 cm in the pethidine group and 5.99 cm in the tramadol group. Prior to analgesia, there were no statistically significant differences between the groups in blood pressure values. The similarity between the two groups, two women who had caesarean sections, indicates proper randomisation and selection in our outcome values. Our study indicated a statistically significant difference in mean duration of delivery, with the tramadol group shorter than the pethidine group ($p=0.0001$). Similarly, in another trial (Keskin's), there was no significant difference between the two groups in duration of labour, whereas Maryam's study found pethidine to result in a somewhat shorter labour. (13) There are several studies showing that most women deliver within three hours after taking an analgesic; some show four to five or seven to eight hours (20). The length of labour was much shorter in our study. Elbourne and Wiseman analysed 16 trials and concluded that pethidine and tramadol were equally beneficial at reducing labour pain, accelerating the delivery process or both. (23) It seems challenging to compare the impact of the narcotics on analgesia since everyone has distinct pain thresholds or perceptions. More than half the ladies in this study judged the analgesic effects of the two medications as being good or excellent. However, in the first stage of labour, and notably in the second stage, the pethidine group reported higher analgesic effects than the tramadol group. Based on these data, pethidine seems to be a preferable option to tramadol for analgesia in the second stage of labour, which agrees with the findings of Keskin et al. (2013). In another trial, both analgesics were found to be equally effective in relieving pain during the first stage of labour. Normal vaginal delivery was 90.86% in the pethidine group and 93.14% in the tramadol group. The caesarean section rate was 6.86% in the pethidine group and 6.4% in the tramadol group. In one group two women had caesarean sections for

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symptoms of foetal distress. In the other investigation, 82% of the women delivered vaginally, and six had caesarean sections (13, 26).

The results are similar to previous reports using 100 mg of tramadol and 75 mg of pethidine and suggest that the use of lower doses of pethidine significantly increases the prevalence of maternal side effects such as nausea, vomiting and drowsiness. Tramadol has been demonstrated to be safe to use during pregnancy with little adverse effect on the mother or unborn child, and Neonatal respiratory depression may be caused by opioids, particularly pethidine. There is some speculation that this phenomenon may happen if the drugs are given intravenously and the baby is delivered within two to three hours of the administration (18). However, many studies have found that using pethidine and tramadol results in unchanged Apgar scores and no respiratory depression requiring resuscitation. The p-value was 0.20 in both groups. There are some limitations for this study: Instead of 100 mg, 50 mg of pethidine was used to prevent possible respiratory depression in the neonate. The drug was delayed until the cervical dilatation was 8 cm. All the women delivered within three hours of administration of the first dosage of either tramadol or pethidine in our experiment. Hence, each of the women required only one dose of these analgesics.

Conclusion & Recommendations

These study results indicate that tramadol could shorten the duration of labor and decrease harmful effects in moms. 100 mg of tramadol and 50 mg of pethidine have been demonstrated to be useful in relieving minor pain in the first stage of labor, but researchers have shown that pethidine is more effective as an analgesic, particularly during the second stage.

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References

1. Liao JB, Buhimschi CS, Norwitz ER. Normal labor: mechanism and duration. *Obstetrics and Gynecology Clinics*. 2005 Jun 1;32(2):145-64.
2. American College of Obstetricians and Gynecologists. Dystocia and augmentation of labor. Practice bulletin No. 49. Washington, DC7 American College of Obstetricians and Gynecologists; 2003.
3. Schrock SD, Harraway-Smith C. Labor analgesia. *American family physician*. 2012 Mar¹;85(5):4
4. Comparative Obstetric Mobile Epidural Trial (COMET) study Group UK. Effect of low-dose mobile versus traditional epidural techniques on mode of delivery: a ran-domised controlled trial. *Lancet*.2001;358(9275):19–23.
5. Vincent RD Jr, Chestnut DH. Epidural analgesia during labor. *Am Fam Physician*.1998;58(8):1785–1792.
6. Sheiner E, Sheiner EK, Shoham-Vardi I. The relationship between parity and labour pain. *Int J Gynaecol Obstet* 1998; 63: 287 8.
7. Lowe NK. Differences in first and second stage labour pain between nulliparous and multiparous women. *J Psychosom Obstet Gynecol* 1992; 13: 243-53.
8. Labor S, Maguire S. The pain of labour. *Reviews in pain*. 2008 Dec;²(2):15-9.
9. Pain pathways of labor [cited 2020 Nov 8]. Available from:(<https://image.slidesharecdn.com/obstetricalanesthesia-130913916-phpapp01/95/obstetrical-anaesthesia-15-6381379086969>)
10. Garra G, Singer AJ, Domingo A, Thode HC. The Wong-Baker pain FACES scale measures pain, not fear. *Pediatric emergency care*. 2013 Jan 1;29(1):17-2.
11. Clinical Handbook of Pediatric Nursing(2nd ed.,p.373),by D.Wong and L. Whaley, 1986, St.Louis,MO:C.V.Mosby Company, for"Pain Medications for Labor&Birth"[PowerPoint slides], by P.Simkin, 2010,Waco,TX:Childbirth Graphics.

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12. Wuitchik M, Bakal DO, Lipshitz JE. The clinical significance of pain and cognitive activity in latent labor. *Obstetrics and Gynecology*. 1989 Jan 1;73(1):35-42.
13. Keskin HL, Aktepe Keskin E, Avsar AF, Tabuk M, Caglar GS. Pethidine versus tramadol for pain relief during labor. *Int J Gynecol Obstet* 2003; 82: 11-16.
14. Lee CR, McTavish D, Sorkin EM. Tramadol. A preliminary review of its pharmacodynamic and pharmacokinetic and therapeutic potential in acute and chronic pain states. *Drugs* 1993;46(2):313 —340.
12. Tsui MH, Ngan Kee WD, Ng FF, Lau TK. A double blinded randomised placebo-controlled study of intramuscular pethidine for pain relief in the first stage of labour. *Br J Obstet Gynaecol* 2004; 111 : 648—655.
13. Lehmann KA. Tramadol in acute pain. *Drugs*. 1997 Jan 1;53:25-33.
14. Husslein P, Kubista E, Egarter C. Obstetrical analgesia with tramadol—results of a prospective comparative study with pethidine. *Z Geburtshilfe Pefinatol* 1987; 191(6):234
- 1 8. Jain S, Arya VK, Gopalan S, Jain V. Analgesic efficacy of intramuscular opioids versus epidural analgesia in labor. *Int J Gynecol Obstet* 2003; 83: 19-27.
19. Romero I, Turok D, Gilliam M. A randomized trial of tramadol versus ibuprofen as an adjunct to pain control during vacuum aspiration abortion. *Contraception* 2008; 77: 56—59.
20. Khooshideh M, Shahriari A. A comparison of tramadol and pethidine analgesia on the duration of labour: a randomised clinical trial. *Australian and New Zealand Journal of Obstetrics and Gynaecology*. 2009 Feb;49(1):59-63
21. Fieni S, Angeri F, Kaihura CT et al. Evaluation of the peripartum effects of 2 analgesics: Meperidine and tramadol, used in labor. *Acta Biomed Ateneo Parmense* 2000; 71: 397-400.

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<https://eurekaooa.com/index.php/5>

22. Viegas OA, Khaw B, Ratnam SS. Tramadol in labor pain in primiparous patients. A prospective comparative clinical trial. Eur J Obstet Gynecol Reprod Biol 1993 ;49: 131-135.
23. Elbourne D , Wiseman RA. Types of intramuscular opioids for maternal pain relief in labour. Cochrane Database Syst Rev 2006; (3):CD001237.
24. Prasertsawat PO, Herabutya Y, Chaturachinda K., 1986. Obstetric analgesia: comparison between tramadol, morphine and pethidine. Curr Therapeut Res; 40 (6): 1022-1028.
25. Fieni S , Angering F, Kaihura CT, Ricci L, Bedocchi L, Galantine B, et al ., 2000. Evaluation of the peripartum effects of 2 analgesics: meperidine and tramadol , used in labor. Acta Biomed Ateneo Parmense; 71(suppl. 1) :397-400.
26. El- Bohoty A and El- Shorbagy, M., 2010. Parental paracetamol in intrapartum analgesia. A pilot study.
27. Long J , Yue Y. Patient controlled intravenous analgesia with tramadol for labor pain relief. Chin Med J 2003; 116:1752-1755.
28. Prasertsawat PO , Herabutya Y, Chaturachinda K. Obstetric analgesia : Comparison between tramadol, morphine and pethidine. Curr Therapeut Res 1986; 40:1022-1028.
29. Bredow V. Use of tramadol versus pethidine versus denaverine suppositories in labor- A contribution to noninvasive therapy of labor pain. Zentralbl Gynakol 1992; 114:551-554.