

A STUDY OF EFFICACY OF INTRAMUSCULAR TRAMADOL INJECTION FOR PAIN RELIEF IN LABOUR

Gynaecology

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ABSTRACT

BACKGROUND: Most severe physiological pain experienced by a woman in her lifetime is a labour pain. Adequate analgesia during labour has a positive influence over the course of labour. Ideal analgesic should be like potent opioid with least adverse effects on both mother and newborn. Most of the women like to experience the child birth as naturally as possible.

METHODS: This hospital based randomized clinical study was performed in the Obstetrics and Gynaecology department of Rajah Muthiah Medical College. 100 primigravidae who fulfilled the selection criteria with good uterine contractions and in active labour were given 100 mg tramadol hydrochloride intramuscular injection.

RESULTS: In this study consecutive 100 primigravidae patients were enrolled. The degree of pain reduction, duration of labour, Apgar score of neonates and adverse effects of tramadol were studied. In this study after injection tramadol administration 62% of the patients had moderate pain relief, 27% had mild pain relief and 11% had no relief. Minimal maternal adverse effects were noted and neonatal Apgar was 8/10 in majority of babies.

CONCLUSION: In primigravida patients with low risk profile, IM tramadol is safe and effective analgesic with minimal adverse effects. For the pleasant experience of natural labour IM opioids can be recommended for the needy patients.

KEYWORDS

Tramadol; Labour ; rupees scale ;

INTRODUCTION:

Labour is a painful process almost experienced by every women in her lifetime. Primigravida patients experience severe pain than multiparous women. In olden days the progress of labour was assessed by the degree of pain experienced by the mother and thought to be indicating successful outcome and delivery. In 1853 Sir John Snow anaesthetised Queen Victoria for the birth of 8th child, prince Leopold with chloroform for painless delivery.

Labour is both physical and psychological stress for a woman and the detrimental effects of difficult labour on the fetus are well documented. Adequate analgesia during labour has a positive influence over the course of labour and the state of newborn child. Thus making obstetrical analgesia an essential part of the modern day practice. An ideal analgesia should be cheap and easy to administer with good pain relief and least adverse effects. It should not impair the level of consciousness, so that the cooperation will be better during labour.

Tramadol a synthetic analogue of codeine, is centrally acting opioid analgesic. It inhibits serotonin and norepinephrine re-uptake, also enhances the inhibitory effects on pain transmission in the spinal cord. It also inhibits type III Muscarinic Receptors. M-3 Receptor antagonism inhibits gastric gland secretion and drives smooth muscle relaxation. Thus, it reduces the duration of labour also. It is shown to be effective, well tolerated and of great value in treating several painful conditions. It has less addiction liability on comparing morphine.

MATERIALS AND METHODS:

This is a randomized clinical study done in a tertiary care hospital over a period of 1 year from May 2012 to April 2013.

Inclusion criteria

All primigravida women with full term pregnancy, Vertex presentation, Singleton live fetus in active phase of labour with head engaged for vaginal delivery.

Exclusion criteria

Multigravida patients, patients who are allergic to Tramadol hydrochloride after subcutaneous test dose, prior medical comorbidities and associated obstetrics complications like multifetal gestation, Abruption placenta, placenta previa, IUGR, and all the contraindications for vaginal delivery.

Once the patient is in active phase of labour evidenced by >3cms cervical dilatation, full cervical effacement with good uterine contractions, vital monitoring and recordings started with pain score

charting. Pain score to be charted before and after administration of 100 mg IM tramadol. Partogram was marked to assess the labour progression. Apgar score of the new born to be noted at 1' and 5' and maternal adverse effects to be noted. The degree of pain is graded according to rupees scale.

Rupees scale

The degree of pain relief was expressed as paisa of the whole rupee. The degree of pain was graded as shown below:

Grade-I No pain with 0 paisa, Grade-II Mild pain with 25 paisa, Grade-III Moderate pain with 50 paisa and Grade-IV severe pain with 75 paisa.

RESULTS:

In this study 100 patients of different age groups were included to evaluate the efficacy and safety of tramadol hydrochloride in curtailing pain during labour and its adverse profile on both mother and neonate.

Table 1 : Age distribution in study population

AGE GROUP (YEARS)	NO.OF PRIMIGRAVIDAE	PERCENTAGE(%)
15-19	08	08
20-24	49	49
25-29	33	33
30-34	10	10

All patients in the study were aged between 15-34 years. Maximum number 49% from 20-24 years and 33% were from 25-29 years. About 10% from 30-34 years and 8% from 15-19 years of age.

Degree of pain after administration of injection Tramadol was significantly reduced (p value-<0.0001). Before drug administration none of them were in grade I and II, 18% had grade III pain and 82% had grade IV pain. After intramuscular tramadol injection 62% of the patients had moderate pain relief, 27% of the primi had mild pain relief and 11% of patients were in grade IV with no relief at all.

Table 2: Degree of pain in study population before and after drug administration

DEGREE OF PAIN	BEFORE DRUG(NO.OF PATIENTS)	AFTER DRUG(NO.OF PATIENTS)
GRADE-I	0	0
GRADE-II	0	62
GRADE-III	18	27
GRADE-IV	82	11

Mean duration of stage I labour is 3.65 hours with 95% confidence interval of 3.61 and 3.69 hours, stage II labour is 23.23 minutes with 95% confidence interval of 22.96 and 23.50 minutes, stage III labour is 6.62 minutes with 95% confidence interval of 6.57 and 6.67 minutes.

Table 3: Duration of stages of labour

STAGE OF LABOUR	MEAN DURATION	SD OF DURATION	95% CONFIDENCE INTERVAL OF MEAN DURATION
STAGE-I(HOURS)	3.65	0.22	3.61, 3.69
STAGE-II(MINS)	23.23	1.34	22.96, 23.50
STAGE-III(MINS)	6.62	0.24	6.57, 6.67

Total duration of labour, 39% of study population had less than three hours and maximum of 61% of patients had 3 to 6 hrs.

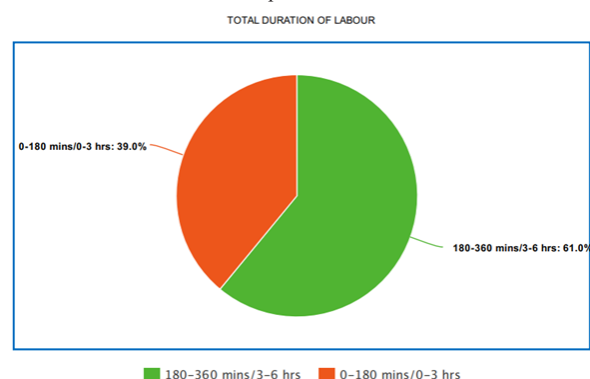


Figure 1: Total duration of labour

Apgar score of the newborn babies at birth was studied. At 1 minute 32% newborn had a score of 3-5/10 and 68% had 6-7/10. At 5 minutes majority (88%) had 8-10/10 and only 12% had 6-7/10. No neonatal death recorded.

Table 4: Apgar score of newborn

APGAR SCORE(TOTAL =10)	1'(n=newborn)	5'(n=newborn)
3-5	32	0
6-7	68	12
8-10	0	88

Maternal adverse events were noted in 13% patients, of which 8% had nausea and 2% had vomiting and 3% had minimal drowsiness.

Table 5: Maternal adverse events

ADVERSE EVENTS	NO.
NAUSEA	8
VOMITING	2
DROWSINESS	3
RESPIRATORY DISTRESS	0

DISCUSSION:

An ideal analgesic in labour should have safety for both the mother and the foetus without any adverse effects and should be convenient for the patient and the obstetrician. The present study was designed to evaluate the efficacy of IM Tramadol Hydrochloride in the active phase of labour in primigravida patients.

Heever and Kell described the technique of grading pain based on the pain score for assessing the efficacy of various forms of analgesia. It is difficult to compare the analgesic effects of the drugs, since it depends on subjective evaluation of the pain. However, fewer studies advised tramadol as an effective analgesic to be used for the treatment of visceral pain, intense postoperative and obstetric pain. In the present study, the effect of intramuscular tramadol when given to 100 primigravida woman in active stage labour of age 15-34 years were studied. Similar studies were conducted earlier.

Jain S, Arya VK et al compared intramuscular tramadol and intramuscular meperidine with epidural analgesia. Epidural analgesia provides better labor analgesia, opioids can be a good alternative when

epidural is not feasible. Tramadol may be preferred over meperidine as it is associated with less maternal sedation. However, its efficacy in the second stage of labor was not found to be as good as meperidine. In their study, opioids were administered only at request. Analgesic efficacy could be better if opioids were administered at regular intervals.

Onset of pain relief in this study was 15-20 minutes after tramadol injection. Onset of pain relief in the study conducted by Nagaria Tripti et al. and study by Sudha Patil et al. was 15-20 minutes. The same was noted in our study. In our study 62% of patients had moderate pain relief, 27% of patients had mild pain relief and 11% of patients had no pain relief after Tramadol administration.

APGAR score were analysed in this study and the majority of newborn had apgar score 8/10 at 5 minutes. In the Bajaj P et al., study, the Apgar score was 8-10 at 5 minutes in all the babies. The results of the referral study was comparable to this present study, which indicates that the drugs have no significant adverse effects on the foetus. Maternal adverse events were also analyzed. The various effects observed were Nausea, Vomiting and Drowsiness. Very minimal side effects were seen in this study. Tramadol is preferred as one of the cheaper drug for adequate analgesia in labour with minimal adverse events on both maternal and neonate.

CONCLUSION:

Tramadol is an effective and safer drug which can be used for reducing labour pain. It caters the expectant mother with all the satisfaction of a normal child birth by reducing the pain severity. It also shortens the first and second stage of labour without significantly affecting the third stage of labour.

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