Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2017; 5(4D):1541-1544 **ISSN 2347-954X (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com DOI: 10.36347/sjams.2017.v05i04.060

Original Research Article

To assess the efficacy and safety of intravenous tramadol in active labour

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Abstract: The delivery of the infant into the arms of a conscious and pain free mother is one of the most exciting and rewarding moment in medicine. Providing effective and safe labour analgesia during labour to a parturient has remained an ongoing challenge. This study was focused to assess the efficacy and safety of intravenous tramadol in active labour. Seventy five cases included under tramadol administered group and seventy five cases under control group. Effective pain relief to moderate pain relief response was seen in 62.2% tramadol receiving primi 58% in multigravida. No pain relief was seen in 16.2% primi gravida and 15.7% multigravida patients. Pain relief within 2 min was seen in 21 primi (56.7%) and 24(63.2%) multigravida parturients. Pain relief with in 5 min was seen in 13(35.2%) primi and 9(23.6%) multigravida parturients. Tramadol decreases the duration of labour and increases duration of analgesia with minimal side effects. It can be easily administer, economical, good therapeutic dose.
Keywords: Tramadol, Intravenous infusion, Labour pain management, Apgar score

INTRODUCTION

Pain in labour is unpleasant and distressing to the women give birth. Labour analgesia has a drastic advancement from the days of ether and chloroform in 18th century to the present day practice of labour pain management. Painless and less time child birth is a desire of every women, has been of great interest to anesthesiologist and gynaecologist. Labour includes several physical, psychological, excitatory and inhibitory interactions [1].

The effective analgesic should possess efficacy in pain relief and have minimal side effects. There are several methods used to control the labour pain such as drugs like isoflurane, desflurane, enflurane, ether, ketamine. Opioid analgesics like Pethidine, Fentanyl, morphine, Buprenorphine. Multiple techniques like inhalation anaesthesia, local anaesthesia, epidural anaesthesia; intravenous anaesthesia is being used for the injection of drugs [2].

Tramadol is a synthetic opioid analogue, safe labour analgesic and has a peculiar property. It has less maternal sedative effect and less neonatal depression [3]. Tramadol binds to opioid receptors with poor bondage and inhibits pain impulse transmission. In addition, it has a significant effect on serotonin and noradrenaline receptors in the descending inhibitory pain pathways of the spinal cord [4]. The present study was designed to assess the efficacy and safety of intravenous tramadol in active labour.

MATERIAL AND METHODS

Pregnancy cases for assessment of the efficacy of tramadol were collected from Jayaa Hospital, Miyapur, Hyderabad and Shreya Hospital, Moti nagar, Hyderabad, during 2014 and 2015. A total of 150 cases were studied 75 cases were given intravenous Tramadol and 75 cases were taken as control group. All uncomplicated full term, primi or multigravida women from different socio-economic classes were included in this study. These patients were given tramadol and their effect was observed and compared with control group.

All full term pregnancy, primi or multigravida cases were included; Patients with preeclampsia, heart disease, diabetes, hypertension, background of epilepsy and psychological complications were excluded from

this study. A detailed clinical history of patients was noted and informed consent was obtained from all the participants.

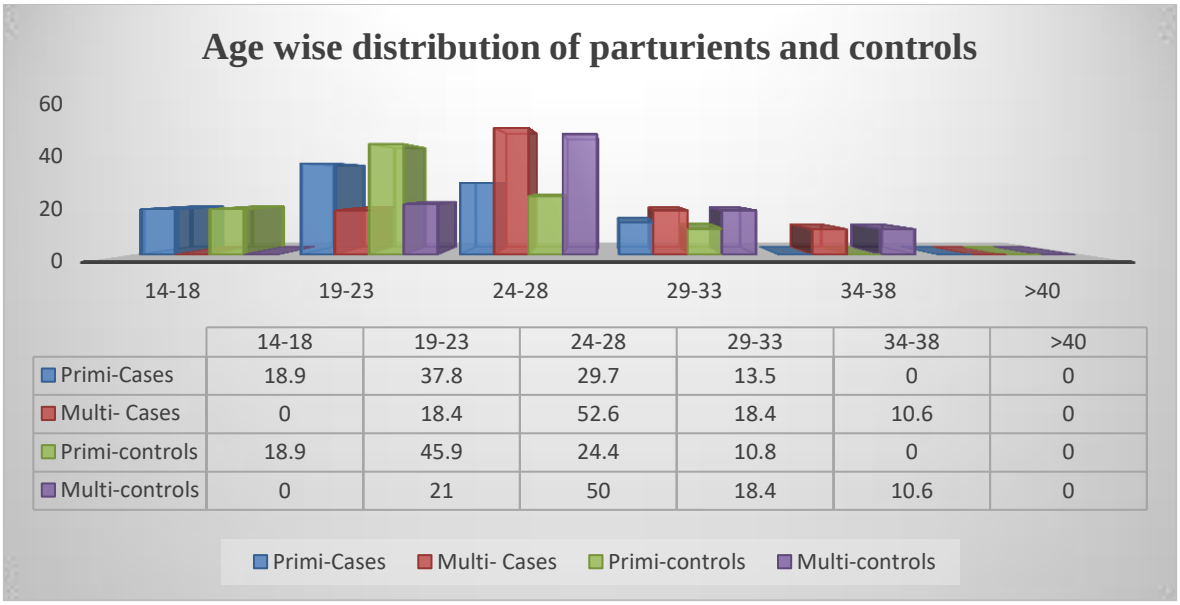
Intravenously for 40-60 sec, 100 mg Tramadol hydrochloride diluted in 10 ml of normal saline was injected. To maintain analgesia continuous infection of tramadol 100 mg of 2 ampoules in 500 c.c of 5% Dextrose was used and drip rate was adjusted according to patient response (10-12 drops/min or 30 ml/hrs). Time of onset of pain and degree pain relief, foetal heart rate for every 20 minutes, BP of parturient for every 20 minutes, Induction delivery intervals, Apgar score of baby at 1min and 5 min and other adverse effects were noted during procedure labour. Grading of pain relief was noted by parturient comments.

RESULTS

A Total of 150 patients were included among them 75 patients were given intravenous tramadol, considered as tramadol group and 75 patients considered as control group. The below table illustrates that in two groups 37 patients were primi and 38 were multigravida.

Table 1: Parity of the patients

Parity	Tramadol		Control	
	No.	%	No.	%
P_0	41	55	21	28
P_1	9	12	15	20
P_2	19	25	33	44
P_3	6	8	6	8



	14-18	19-23	24-28	29-33	34-38	>40
Primi-Cases	18.9	37.8	29.7	13.5	0	0
Multi- Cases	0	18.4	52.6	18.4	10.6	0
Primi-controls	18.9	45.9	24.4	10.8	0	0
Multi-controls	0	21	50	18.4	10.6	0

Fig 1: Age wise distribution of tramadol group and control subjects

Table 2: On set of pain relief in parturients

Time	Tramadol			
	Primi		Multi	
	Number	percentage	Number	percentage
Within 2 min	21	56.7	24	63.2
Within 5 min	13	35.2	9	23.6
No relief	3	8.1	5	13.2
Total	37	100	38	100

Pain relief within 2 min was seen in 21 primi (56.7%) and 24(63.2%) multigravida parturients. Pain relief with in 5 min was seen in 13(35.2%) primi and 9(23.6%) multigravida parturients. 3(8.1%) primi and 5 (13.2%) multigravida patients were not releived with pain by Tramadol administration. (Table 2)

Table 3: Degree of pain relief in parturients

Degree of Pain relief	Tramadol			
	Primi		Multi	
	Number	percentage	Number	percentage
Effective relief of pain	9	24.4	9	23.7
Moderate relief	14	37.8	13	34.3
Mild relief	8	21.6	10	26.3
No relief	6	16.2	6	15.7
Total	37	100	38	100

Maximum response was moderate relief of pain and seen in 14 (37.8%) primi and 13 (34.3%) multigravida. In 6 (16.2%) in primi and 6 (15.7%) in Multi gravida were indicated no relief of pain (Table 3).

In related to the effect of tramadol on cardiovascular parameters shows increase in heart rate was seen in 28%, systolic BP in 48% and diastolic BP in 20% of the tramadol administered parturients. In control subjects increase in heart rate was seen 34 %, systolic B.P in 42% and Diastolic BP in 14%.

Table 4: APGAR score of infants at 1 min

Apgar Score	Tramadol				Control			
	Primi		Multi		Primi		Multi	
	No.	%	No.	%	No.	%	No.	%
4-6	8	21.6	5	13	23	62.2	4	10.6
7-8	24	64.8	26	68.4	8	21.6	28	73.7
9-10	5	13.6	7	18.4	6	16.2	6	15.7
Total	37	100	38	100	37	100	38	100

Table 5: Apgar score of infants at 5 min

Apgar Score	Tramadol				Control			
	Primi		Multi		Primi		Multi	
	No.	%	No.	%	No.	%	No.	%
4-6	4	10.8	1	2.7	3	8.1	4	10.6
7-8	7	18.9	10	26.3	9	24.3	6	15.7
9-10	26	70.3	27	71	25	67.6	28	73.7
Total	37	100	38	100	37	100	38	100

DISCUSSION

The practice of obstetrics analgesia has altered greatly and gained importance in recent years and many factors are responsible for this such as, overcome of new drugs and techniques of drug delivery, increasing rate of operative delivery and the more accurate assessment of foetal wellbeing. Thus the role of labour analgesia in modern obstetrics is invaluable. Tramadol is an efficient analgesic having excellent patient tolerability with similar potency of pethidine [5-8]. Tramadol hydrochloride a synthetic analogue of codeine has been suggested as equally effective analgesic and is cheaper than meperidine. It may be preferred over meperidine as it is associated with less sedation [9].

In present study the age of patients varied from 16-37 years. Maximum primi patients belong to 19-23 years. In patient group 14 (37.8%) and control 17 (45.9%). Among multigravida patients, maximum patients 20 (52.6 %) belong to age 24 - 28 years in patient group and control group also i.e. 19 (50%). Age

factor was always insignificant in different study group as shown by previous researchers [10].

The onset of analgesic action was within 2 minutes and was comparable to action of pethidine [7]. Husslein *et al.;* found that onset of analgesic actions was with in 10 minute of intramuscular administration. In present study (Table 2) also similar results were noted regarding tramadol administration as most of the patient 45 (60%) had pain relief with in 2 minute 21 (56.7%) primi and 24 (63.2%) multigravida patients.

In Present study degree of pain relief in different study groups. Response was moderate to effective relief of pain in 22(88%). Among them 13 (52%) primi and 9(36%). Multigravida patients Response was mild relief 6(24%) primi and 10(40%) in multigravida patients. Studies by Nagaria Triptiet *et al.;* observed 37% good pain relief in labour [11]. No relief of pain was experienced by quite in high number of cases i.e.by 6 (16.2%) primi and 6(15.7%) multigravida patient, study results were differ from the previous study by Bitsch et al reported no failure cases among 23 tramadol treated patient while comparing its effect with pethidine in parturient women 'Good' response was noted in 80% patient by Prasertsawal *et al.;* [5, 6, 12].

In present study Tramadol administration shows slight alterations in cardiovascular parameters. An increase in heart rate from 90 per minute up to 120/minute was seen in total 28% of tramadol group and 34% in control group. In our study patients 48% had increased systolic blood pressure up to 20 mmHg and 20% had raise in diastolic blood pressure.

CONCLUSION

Effective pain relief to moderate pain relief response was seen in 62.2% tramadol receiving primi 58% in multigravida. No pain relief was seen in 16.2% primi gravida and 15.7% multigravida patients. Increase in heart rate by 10-30 per minutes was seen in 34% tramadol group. Increase in systolic blood pressure by 20mmHg was seen in 48% and Increase diastolic blood pressure in 20% patients of tramadol group. Foetus heart rate pattern were unchanged in most of' the patients throughout labour. So Tramadol does not seen to have any effect on Foetus.

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