

Intravenous infusion of acetaminophen during the active phase of labour

VirajNandkishorGodbole¹, Shefali Chavhan²

¹MBBS DNB, Assistant lecturer, RSCSM GMC Kolhapur, dearviraj@gmail.com

²MBBS,DGO, DNB, Obstetrics & Gynaecology, Senior resident, VNGMC yavatmal, Yavatmal

Corresponding author

VirajNandkishorGodbole

MBBS DNB, Assistant lecturer, Rscsm GMC Kolhapur, dearviraj@gmail.com

ABSTRACT

Background:The present study was undertaken for assessing the efficacy of an intravenous infusion of acetaminophen during the active phase of labour.**Materials & methods:**50 pregnant females were enrolled. All the subjects were broadly divided into two study groups, with 25 patients in each group, as follows: Group 1: Patients received iv Acetaminophen, and Group 2: Patients receiving matched placebo. Secondary outcome measures included duration of labour, and VAS. All the results were recorded and analysed by SPSS software. **Results:**Mean duration of first stage labour among the subjects of the study group and the control group was 373.2 minutes and 641.6 minutes respectively. Significant results were obtained while comparing the mean duration of first stage of labour among study group and the control group of the subjects. Mean VAS after 30 minutes among subjects of study group and control group was 7.11 and 6.23 respectively. Significant results were obtained while comparing mean VAS after 30 minutes among subjects of the study group and the control group.**Conclusion:**From above results, the authors conclude that Intravenous acetaminophen is an efficacious non-opioid drug for relieving labour pain.

Key words: Acetaminophen, Labour

INTRODUCTION

Childbirth is an important experience in a woman's life; nevertheless, labor pains are considered to be one of the most intense and stressful experiences, being compared in intensity to severe cancer pain or pain from the amputation of a digit. Adequate analgesia during labor has a positive influence on the course of labor, and most women who deliver in modern obstetric units request some form of pharmacological or nonpharmacological pain relief.¹⁻³ Epidural analgesia using opioids is the most potent method for women in labor in need of effective analgesia; however, it prolongs the duration of the second stage of labor by 15–30 min and may increase the rate of instrument-assisted vaginal deliveries as well as that of oxytocin administration. i.m. administration of narcotics can also reduce the pain of labor pain but this method is limited by negative side-effects such as maternal drowsiness, nausea and vomiting as well as neonatal respiratory depression. Paracetamol has been widely used for over a century as an effective analgesic and as an antipyretic agent.⁴⁻⁶ Hence; the present study was undertaken for assessing the efficacy of an intravenous infusion of acetaminophen during the active phase of labour.

MATERIALS & METHODS

The present study was undertaken for assessing the efficacy of an intravenous infusion of acetaminophen during the active phase of labour. A total of 50 pregnant females were enrolled. Only patients within the gestational age between 37-42 weeks and within 1st stage of Labour with cervical dilatation 3-4 cm (in active phase) were enrolled. All the subjects were broadly divided into two study groups, with 25 patients in each group, as follows:

Group 1: Patients received IV Acetaminophen,

Group 2: Patients receiving matched placebo.

Outcome was assessed. All the results were recorded and analysed by SPSS software. Chi-square test, Mann Whitney U test and student t test were used for evaluation of level of significance. P- value of less than 0.05 was taken as significant.

RESULTS

10 subjects of the study group and 12 subjects of the control group belonged to the age group of 21 to 30 years. While comparing the age-wise distribution of patients, non-significant results were obtained. Non-significant results were obtained while comparing the distribution of subjects of the study group and control group according to Gravida. Mean duration of first stage labour among the subjects of the study group and the control group was 373.2 minutes and 641.6 minutes respectively. Significant results were obtained while comparing the mean duration of first stage of labour among study group and the control group of the subjects. Mean VAS after 30 minutes among subjects of study group and control group was 7.11 and 6.23 respectively. Significant results were obtained while comparing mean VAS after 30 minutes among subjects of the study group and the control group.

Table 1: Comparison of duration of first stage of labour among study group and the control group of the subjects

Duration of first stage of labour (minutes)	Study	Control group	Mann Whitney U test	P- value
Mean	373.2	641.2	287.5	0.000 (Significant)
SD	56.8	135.3		

Table 2: Comparison of VAS after 30 minutes among subjects of the study group and the control group

Duration of first injection	Study	Control group	Mann Whiney U test	P- value
Mean	7.11	6.23	418.1	0.000 (Significant)
SD	0.49	0.42		

DISCUSSION

Labor pain is among the most excruciating pain experienced by women. Labor pain affects maternal psychology and course of labor causing apprehension, anxiety, and stress. Pain during the first stage of labor originates predominantly due to cervical dilatation and uterine muscle wall ischemia leading to lactate accumulation. During the late first stage and second stage of labor, the vagina and perineum form additional sources of pain. The associated increase in sympathetic activity leads to increased oxygen consumption, respiratory alkalosis, and metabolic acidosis which could lead to decreased oxygen being transferred to the fetus. Thus, pain relief during labor is expected to reduce maternal stress and improve maternal and perinatal outcome. Obstetric analgesia and anesthesia have evolved from vague possibility to reality. The non-pharmacological techniques of analgesia include emotional support, relaxed birth environment, psycho-somatic preparation, yoga, acupuncture, and transcutaneous electrical nerve stimulation (TENS).⁶⁻⁹ Hence; the present study was undertaken for assessing the efficacy of an intravenous infusion of acetaminophen during the active phase of labour.

In the present study, 10 subjects of the study group and 12 subjects of the control group belonged to the age group of 21 to 30 years. While comparing the age-wise distribution of patients, non-significant results were obtained. Non-significant results were obtained while comparing the distribution of subjects of the study group and control group according to Gravida. Mean duration of first stage labour among the subjects of the study group and the control group was 373.2 minutes and 641.6 minutes respectively. Lallar M et al compared intravenous paracetamol and intramuscular tramadol as labor analgesics. This prospective-randomized study conducted in 200 primigravidae in active labor, distributed into two groups of 100 women each with one receiving intravenous 1,000 mg Paracetamol and other 100 mg intramuscular tramadol. Pain intensity is recorded by McGills scale before, one and 3 h after drug administration. Perinatal outcome is recorded. No difference in pain intensity is seen before drug administration. After 1 h of drug administration, in paracetamol group, 4 % women had horrible pain, and 29 % had distressing pain, while in tramadol group, 30 % women had horrible pain, and 60 % had distressing pain. After 3 h of drug administration, in paracetamol group, 26 % had distressing pain, while in tramadol group, 51 % women had horrible pain, and 35 % had distressing pain. Labor duration in paracetamol and tramadol group was 4.3 and 5.9 h, respectively. In paracetamol group, nausea is seen in 2.2 % and vomiting in 1.1 %, while in tramadol group, nausea is seen in 6.4 % and vomiting in 4.3 %. Intravenous paracetamol is more effective labor analgesic with fewer maternal adverse effects and shortens labor as compared to intramuscular tramadol.¹⁰

In the present study, significant results were obtained while comparing the mean duration of first stage of labour among study group and the control group of the subjects. Mean VAS after 30 minutes among subjects of study group and control group was 7.11 and 6.23 respectively. Significant results were obtained while comparing mean VAS after 30 minutes among subjects of the study group and the control group. Gupta K et al evaluated 80 parturients were randomly assigned to two groups of 40 each, to receive either 1000 mg (100 ml) i.v.paracetamol or 100 ml normal saline as placebo, 30 min before the procedure. The primary outcome was hourly mean consumption of levobupivacaine and fentanyl mixture (ml.h-1). Secondary outcomes included pain score, sensory and motor block, haemodynamic parameters of mother, duration of second stage of labour, mode of delivery, Apgar scores, foetal heart rate and adverse effects. Results: The hourly mean drug consumption in the Paracetamol group was significantly lower as compared with the Placebo group. The mean number of boluses taken was also significantly less in the paracetamol group. Pain scores decreased in both the groups without significant inter-group differences. From the results, the authors concluded that use of 1000 mg i.v.paracetamol decreases the mean hourly drug consumption through epidural route.⁹

CONCLUSION

Intravenous acetaminophen is an efficacious non-opioid drug for relieving labour pain and decreasing duration of labour without any significant adverse effects.

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