

Original Research

Assessment of efficacy of paracetamol in controlling analgesia during labour

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ABSTRACT:

Background: The present study was undertaken for assessing the efficacy of paracetamol in controlling analgesia during labour. **Materials & methods:** A total of 50 subjects of primigravid were enrolled. From beginning of active phase of delivery, patients received an intravenous solution infusion containing 1000mg paracetamol and 300 cc of normal saline. After child birth, average labour pain was assessed using Visual Analogue Scale (VAS) by direct questioning from patient. All the results were recorded and analysed using SPSS software. **Results:** Mean gestational age was 38.6 weeks. Mean duration of labour was 3.02 hours. Extra analgesic requirement was seen in 10 percent of the subjects. The estimated pain score based on verbal questioning from mothers at the end of delivery using VAS of pain was 7.9. **Conclusion:** Paracetamol is a safe and effective adjunct in labour analgesia.

Keywords: Labor, Paracetamol

Received: 3 March, 2022

Accepted: 15 March, 2022

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This article may be cited as: Bansal L, Negi P. Assessment of efficacy of paracetamol in controlling analgesia during labour. J Adv Med Dent Scie Res 2022;10(3):110-112.

INTRODUCTION

Child birth is allied with very severe pain for most women. Pain during labour is a complex, subjective and multi-faceted physiological phenomenon that varies in intensity among women and is subjected to many social and cultural modifiers. It encompasses both sensory component and the very vital emotional, motivational and cognitive facets. Initially pain commences predominantly in cervix and lower uterine segment but later on, following descent, progressively grander pressure of foetus on vagina and perineum engender superfluous sources of pain.¹⁻³

Neuraxial techniques are accepted as the gold standard for intrapartum labour analgesia. It has been refined over the past 20 yr to provide higher quality of pain relief, less motor weakness and more control over the administration of pain relief medications. Addition of adjunctive agents (opioids, epinephrine or clonidine) in epidural analgesia, may provide a dose sparing effect, increase the duration and quality of analgesia, but the use of narcotics is limited by adverse effects such as drowsiness, nausea, and vomiting in the mother, and respiratory depression in the neonate.⁴⁻⁶

For over a century, paracetamol has been widely used as an effective antipyretic and analgesic medication with well-established tolerability and favorable safety profile, including more recent evidence of its use through the i.v. route in postoperative pain. Although paracetamol has been used as an effective and safe analgesic medication, there is a paucity of studies assessing its intrapartum use.⁷Hence; under the light of above mentioned data, the present study was undertaken for assessing the efficacy of paracetamol in controlling analgesia during labour.

MATERIALS & METHODS

The present study was undertaken for assessing the efficacy of paracetamol in controlling analgesia during labour. A total of 50 subjects of primigravid were enrolled. Only those subjects were enrolled who had full-term pregnancy (Gestational Age (GA) more than 37 weeks based on ultrasound findings) and subjects scheduled for normal vaginal delivery. Complete demographic and clinical details of all the subjects were recorded. During first stage of delivery, foetus was monitored using transvaginal ultrasonography. From beginning of active phase of delivery, patients received an intravenous solution

infusion containing 1000mg paracetamol and 300 cc of normal saline. After child birth, average labour pain was assessed using Visual Analogue Scale (VAS) by direct questioning from patient. All the results were recorded and analysed using SPSS software.

RESULTS

A total of 50 subjects were analysed. Mean age of the subjects was 28.1 years. Mean BMI of the subjects was 25.9 Kg/m². Mean gestational age was 38.6 weeks. Mean duration of labour was 3.02 hours. Extra analgesic requirement was seen in 10 percent of the subjects. The estimated pain score based on verbal questioning from mothers at the end of delivery using VAS of pain was 7.9.

Table 1: Details

Variable	Mean	SD
Age	28.1	2.3
BMI (Kg/m ²)	25.9	2.1
Gestational age (weeks)	38.6	1.8
Extra-analgesic requirement	10 percent of the subjects	
VAS	7.9	1.8

DISCUSSION

The pain of childbirth is arguably the most severe pain most women will endure in their lifetime. Various responses to pain such as marked stimulation of respiration and circulation, activation of neuroendocrine system and pain-related behaviors, may produce deleterious consequences to both mother and foetus. Many of these responses are mitigated by effective pain relief.⁸

Acetaminophen is an effective non-narcotic analgesic and antipyretic drug with tolerable side-effects. Acetaminophen is thought to exert its analgesic activity by inhibiting the synthesis of prostaglandins in the Central Nervous System (CNS) (central acting) and peripherally blocking pain impulse generation. Also, it has a serotonergic (5-HT) mechanism and a cannabinoid agonism mechanism contributing to its analgesic effect. When compared to other opioids, and nonsteroidal anti-inflammatory drugs, paracetamol has a favourable safety profile without any risk of congenital anomalies.^{9, 10}Hence; under the light of above mentioned data, the present study was undertaken for assessing the efficacy of paracetamol in controlling analgesia during labour.

A total of 50 subjects were analysed. Mean age of the subjects was 28.1 years. Mean BMI of the subjects was 25.9 Kg/m². Mean gestational age was 38.6 weeks. Mean duration of labour was 3.02 hours. Extra analgesic requirement was seen in 10 percent of the subjects. The estimated pain score based on verbal questioning from mothers at the end of delivery using VAS of pain was 7.9. Our results were in concordance with the results obtained by previous authors who also reported similar findings. In a study

conducted by Abdollahi MH et al, authors compared analgesic efficacy of paracetamol with pethidine for labour pain in normal vaginal delivery. 80 primigravid singleton women with full-term pregnancy candidate for normal vaginal delivery, were entered the trial and divided in to pethidine (A) and paracetamol (B) groups. At the time of admission, age and body mass index of mother and gestational age based on last day of period were recorded. In both groups, intravenous promethazine and hyoscine were administered to each patient at the first stage of delivery. From beginning of active phase of delivery, patients in group A received 50 mg intramuscular pethidine injection. At the same time patients in group B, received an intravenous solution infusion containing 1000 mg paracetamol and 300 cc of normal saline. After child birth, average labour pain was assessed using Visual Analogue Scale (VAS) by direct questioning from patient in both groups. After patients' selection, 19 individual omitted during study due to exclusion criteria and finally 30 patients in paracetamol group and 31 patients in pethidine group remained to enter the trial. There was no significant difference in age and BMI of mothers between both groups ($P > 0.05$). Maternal age and labour duration in paracetamol group had no meaningful difference with maternal age and labour duration of patients in pethidine group ($P > 0.05$). The average VAS pain score was significantly lower in paracetamol comparing to that of pethidine group (8.366 out of 10, 9.612 out of 10, respectively, $P < 0.001$). They concluded that intravenous paracetamol is more effective than intramuscular pethidine to relief labour pain in normal vaginal delivery.¹¹

In another similar study conducted by Zutski et al, authors evaluated the efficacy of an intravenous infusion of 1000 mg of acetaminophen as an intrapartum analgesic. The first 200 consecutive parturients fulfilling the inclusion criteria were recruited into the study. Women were then randomised to receive either intravenous 1000 mg (100ml) of acetaminophen (Group A, n=100) or 100 ml normal saline (Group B, n=100). Primary outcome assessed was effectiveness of acetaminophen to provide an adequate amount of analgesia, as measured by a change in Visual Analogue Scale (VAS) pain intensity score at various times after drug administration. Secondary outcomes measured were duration of labour, need for additional rescue analgesia and presence of adverse maternal or foetal effect. There was pain reduction at 1 and 2 hours in both groups ($p < 0.001$). However, it was more significant in the acetaminophen group, especially at 1 hour. Duration of labour was shortened in both the groups, without any maternal and foetal adverse effects. Intravenous acetaminophen is an efficacious non-opioid drug for relieving labour pain without any significant maternal and foetal adverse effects.¹²

CONCLUSION

Paracetamol is a safe and effective adjunct in labour analgesia.

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