Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies

Journal home page:www.jamdsr.com doi:10.21276/jamdsr Index Copernicus value [ICV] =82.06

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

Intravenous acetaminophen infusion for analgesia during active labour

Manisha Borkar

Associate Professor, Department of Obs & Gynae, Saraswathi Institute of Medical Sciences, Hapur, Uttar Pradesh, India

ABSTRACT:

Background: The present study was conducted for assessing the efficacy of intravenous acetaminophen infusion for analgesia during active labour. **Materials & methods:** The present study was conducted for assessing the efficacy of intravenous acetaminophen infusion for analgesia during active labour. 100 pregnant females were enrolled. Complete demographic and clinical details of all the patients was obtained. All the females were included in the present study and were broadly divided into two study groups, with 50 patients in each group, as follows:Group 1: Patients received IV Acetaminophen, and Group 2: Patients reviving matched placebo. The course of events was studied and decrease in intensity of pain if any during labour was accessed by visual analog score. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software. **Results:** Mean age of the patients of study groups and control group was 28.3 years and 29.1 years. Mean duration of first stage of labour was 394.5 minutes and 185.3 minutes respectively (p-value < 0.05). Mean VAS after 30 minutes and 60 minutes among subjects of the study group was significantly lower in comparison to control group. **Conclusion:** We recommend use of Intravenous acetaminophen infusion for analgesia during active labour.

Key words: Labour, Analgesia, Acetaminophen

Received: 25 August, 2019 Accepted: 27 September, 2019

Corresponding Author: Manisha Borkar, Associate Professor, Department of Obs & Gynae, Saraswathi Institute of Medical Sciences, Hapur, Uttar Pradesh, India

This article may be cited as: Borkar M. Intravenous acetaminophen infusion for analgesia during active labour. J Adv Med Dent Scie Res 2019;7(10):253-255.

INTRODUCTION

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.[1, 2] 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.[3- 5]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.[6- 9]Hence; the present study was conducted for assessing the efficacy of intravenous acetaminophen infusion for analgesia during active labour.

MATERIALS & METHODS

The present study was conducted for assessing the efficacy of intravenous acetaminophen infusion for analgesia during active labour.100 pregnant females were enrolled. Complete demographic and clinical details of all the patients was obtained. All the females were included in the present study and were broadly divided into two study groups, with 50 patients in each group, as follows:

Group 1: Patients received IV Acetaminophen,

Group 2: Patients reviving matched placebo.

The course of events was studied and decrease in intensity of pain if any during labour was accessed by

visual analog score. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.

RESULTS

Mean age of the patients of study groups and control group was 28.3 years and 29.1 years. Mean duration of first stage of labour was 394.5 minutes and 185.3 minutes respectively (p-value < 0.05). Mean VAS after 30 minutes and 60 minutes among subjects of the study group was significantly lower in comparison to control group.

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

Duration of first stage of labour (mins)	Study	Control group	P- value
Mean	394.5	527.5	0.001 (Sig)
SD	185.3	201.7	

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

VAS	Study	Control group	P- value
Mean	5.2	6.1	0.001 (Sig)
SD	2.1	1.3	

Table 3: Comparison of VAS after 30 minutes among subjects of the study group and the control group

VAS	Study	Control group	P- value
Mean	5.2	6.1	0.001 (Sig)
SD	2.1	1.3	

DISCUSSION

Mean age of the patients of study groups and control group was 28.3 years and 29.1 years. Mean duration of first stage of labour was 394.5 minutes and 185.3 minutes respectively (p-value < 0.05). Mean VAS after 30 minutes and 60 minutes among subjects of the study group was significantly lower in comparison to control group. Freeman LM et al determined women's satisfaction with pain relief using patient-controlled analgesia with remifentanil compared with epidural analgesia during labour. To exclude a clinically relevant difference in satisfaction with pain relief of more than 10%, they needed to include 1136 women. Because of missing values for satisfaction this number was increased to 1400 before any analysis. They used multiple imputation to correct for missing data. Before the onset of active labour consenting women were randomised to a pain relief strategy with patient controlled remifentanil or epidural analgesia if they requested pain relief during labour. Main outcome measures Primary outcome was satisfaction with pain relief, measured hourly on a visual analogue scale and expressed as area under the curve (AUC), thus providing a time weighted measure of total satisfaction with pain relief. A higher AUC represents higher satisfaction with pain relief. Secondary outcomes were pain intensity scores, mode of delivery, and maternal and neonatal outcomes. Analysis was done by intention to treat. The study was defined as an equivalence study for the primary outcome. 1414 women were randomised, of whom 709 were allocated to patient controlled remifentanil and 705 to epidural analgesia. Baseline characteristics were comparable. Pain relief was ultimately used in 65% (447/687) in the remifentanil group and 52% (347/671) in the epidural analgesia group. The rate of caesarean section was 15% in both groups. Oxygen saturation was significantly lower (SpO2 <92%) in women who used remifentanil. Maternal and neonatal outcomes were comparable between both groups. In women in labour, patient controlled analgesia with remifentanil is not equivalent to epidural analgesia with respect to scores on satisfaction with pain relief.[10]Kaur Makkar J et al evaluated the efficacy and safety profile of paracetamol in comparison with tramadol for pain relief during active labor. Sixty laboring, primiparous, full-term parturients with uncomplicated, singleton pregnancy in spontaneous labor and cervical dilatation of 3-5 cm. Parturients were randomized into 2 groups to receive either 1 mg/kg of tramadol intramuscularly (group T; n = 29) or 1 g of paracetamol intravenously (group P; n = 30). Same doses of the drugs were repeated after 4 hours of initial dose. Primary outcome of the study was to assess the analgesic efficacy of the 2 drugs as measured by visual analog scale (VAS) score. Secondary outcome recorded was duration of labor, presence of any maternal, or fetal adverse events during the study. Both the groups showed comparable VAS scores at all times of observation. Lower mean VAS scores were reported in both the groups till 120 minutes only. The duration of first stage of labor was shorter in group P (248.00 ± 98.171 vs 340.63 ± 111.592 minutes; P = .003). The duration of second stage of labor was comparable between the 2 groups. Higher incidence of maternal side effects such as nausea/vomiting and sedation was associated with the use of tramadol. Neonatal outcome was comparable. Intravenous paracetamol provides comparable analgesia as intramuscular tramadol during active labor.[11]

Kashif S et al evaluated the effect of intravenous (IV) paracetamol on hemodynamic changes due to endotracheal intubation during cesarean section under general anesthesia. Random allocation of one hundred and ten patients in two groups (Group A - placebo and Group B - paracetamol), was achieved as per computer generated table. The placebo (normal saline) and paracetamol solutions looked identical as both were available in 100 ml piggy bags and were labeled as study drug. Infusion of the drug was given 1 h before surgery. Two baseline readings of heart rate, systolic blood pressure (BP), diastolic BP and mean BP were recorded before induction, and these readings were repeated during intubation. Detrimental effect on neonate was evaluated by Apgar score measured at 1 and 5 min after birth. There were no significant demographic differences found between the two groups. Hemodyamic changes during intubation also did not differ between the two groups. Administration of IV paracetamol 1 h before cesarean section has no significant effect in preventing hemodynamic changes at the time of endotracheal intubation.[12]

CONCLUSION

We recommend use of Intravenous acetaminophen infusion for analgesia during active labour.

REFERENCES

1. Labor S, Maguire S. The Pain of Labour. Reviews in Pain. 2008;2(2):15-19.
2. Combination analgesic efficacy: individual patient data meta-analysis of single-dose oral tramadol plus acetaminophen in acute postoperative pain JE Edwards, HJ McQuay, RA Moore - Journal of pain and symptom …, 2002 – Elsevier.
3. Lieberman E, O′Donohue C. Unintended effects of epidural analgesia during labor: A systematic review. Am J Obstec Gynecol 2002;186:S31-68.
4. Wong CA. Advances in labor analgesia. Int J Womens Health 2009;1:139-54.
5. Leo S, Sia AT. Maintaining labour epidural analgesia: Curr Opin Anaesthesiol 2009;21:263-9.
6. Wallet F, Clement HJ, Bouret C, Lopez F, Broisin F, Pignal C, et al. Effects of a continuous low-dose clonidine epidural regimen on pain, satisfaction and adverse events during labour: a randomized, double-blind, placebo-controlled trial. Eur J Anaesthesiol 2010;27:441-7
7. Cheer JF, Cadogan AK, Marsden CA, Fone KC, Kendall DA. Modification of 5-HT2 receptor mediated behaviour in the rat by oleamide and the role of cannabinoid receptors. Neuropharmacology. 1999;38:533–541.
8. Abdollahi M-H, Mojibian M, Pishgahi A, et al. Intravenous paracetamol versus intramuscular pethidine in relief of labour pain in primigravid women. Nigerian Medical Journal : Journal of the Nigeria Medical Association. 2014;55(1):54-57.
9. Malaise, O., Bruyere, O., & Reginster, J.-Y. (2007). Intravenous paracetamol: A review of efficacy and safety in therapeutic use. Future Neurology, 2(6), 637-688.
10. Freeman LM, Bloemenkamp KW, Franssen MT, Papatsonis DN, Hajenius PJ, Hollmann MW et al. Patient controlled analgesia with remifentanil versus epidural analgesia in labour: randomised multicentre equivalence trial. BMJ 2015;350:h846.
11. Kaur Makkar J1, Jain K2, Bhatia N3, Jain V4, Mal Mithrawal S5. Comparison of analgesic efficacy of paracetamol and tramadol for pain relief in active labor. J Clin Anesth. 2015 Mar;27(2):159-63. doi: 10.1016/j.jclinane.2014.08.008. Epub 2014 Nov 28.
12. Kashif S, Hamid M. Efficacy of intravenous paracetamol on pressor response in patients undergoing cesarean section under general anesthesia. Journal of Anaesthesiology, Clinical Pharmacology. 2016;32(2):210-213.