Research Article

Study of Intravenous Drug Analgesia for first stage labour pain relief: a descriptive study

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Abstract

Pain relief in labour is among the most common problem encountered by treating doctors. Various methods are being increasingly employed for pain relief during labour. Present study describes the effect of Intravenous Drug Analgesia in relief of first stage of labour pain. 100 cases of full term (37 to 42 weeks) singleton pregnancy with cephalic presentation in active phase of labour with cervical dilatation of ≥ 3cm but ≤ 5 cm were included in the study. VAS was used to assess the pain before administering labour analgesia and repeated at 1 hour, 2 hour, 4 hour and at full dilatation of cervix. Overall effect of labour analgesia in relief of pain was categorized as: Excellent, Good, Fair and Poor. Duration of labour was recorded from time of administration of labour analgesia to delivery of baby. Mode of delivery was also noted and categorized as Normal, Assisted- Ventouse/Forceps or Caesarean. Assessment of neonatal outcome was done using APGAR score in all babies at 1 minute and 5 minute. Side effects or complications were also noted. The results indicate that Intravenous Drug Analgesia is as an effective mode of management of labour pain.

Keywords: Intravenous Drug Analgesia, OBGY.

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INTRODUCTION

Advances in the field of labour analgesia have tread a long journey from the days of ether and chloroform in 1847 to the present day practice of comprehensive programme of labour pain management using evidence-based medicine. Newer advances include introduction of newer techniques like combined spinal epidurals, low-dose epidurals facilitating ambulation, pharmacological advances like introduction of remifentanil for patient-controlled intravenous analgesia, introduction of newer local anaesthetics and adjuvants like ropivacaine, levobupivacaine, sufentanil, clonidine and neostigmine, use of inhalational agents like sevoflourane for patient-controlled inhalational analgesia using special vaporizers, all have revolutionized the practice of pain management in labouring parturients. Technological advances like use of ultrasound to localize epidural space in difficult cases minimizes failed epidurals and introduction of novel drug delivery modalities like patient-controlled epidural analgesia (PCEA) pumps and computer-integrated drug delivery pumps have improved the overall maternal satisfaction rate and have enabled us to customize a suitable analgesic regimen for each parturient [1]. Tramadol, a certainly acting drug with low affinity for opioid receptors and pentazocine a weak antagonist and potent agonist for opioid receptors are currently being utilised and studied for relief of labour pain [2]. We have earlier reported the observations regarding the effect of Paracervical block in relief of labour pain [3]. Present study describes the effect of the Intravenous drugs tramadol, pentazocine, Drotaverine and diazepam in relief of first stage of labour pain with respect to visual analog scale (VAS), duration of labour, mode of delivery, and neonatal outcome.

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METHODS

Study was carried over a period of two years at the Department of OBGY, Sassoon General Hospital, Pune. 100 cases of full term (37 to 42 weeks) singleton pregnancy with cephalic presentation in active phase of labour with cervical dilatation of ≥ 3cm but ≤ 5 cm were included in the study. Subjects with any conditions like cephalopelvic disproportion, severe preeclampsia, eclampsia, intrauterine growth restriction, antepartum haemorrhage, multiple pregnancy, previous caesarean delivery, diabetes mellitus, heart disease, severe anaemia, sensitivity to drugs or any major medical disorder were excluded from the study. Informed consent was taken from each of the participants as per guidelines. Age and detailed history of the participants was recorded. Physical and obstetric examination was done in detail. Intravenous analgesia with tramadol, pentazocine and diazepam was given after securing intravenous access. An ampoule of 30 mg pentazocine diluted with diluents like normal saline or distilled water was used. An ampoule of Diazepam of 10 mg was used diluted with 10 ml diluents. Then one-fifth of each drug i.e. 6mg pentazocine and 2mg diazepam was administered slowly in bolus form through tubing of infusion line. Injection tramadol was administered in the dose of 1mg/kg body weight slowly intravenously along with inj. Drotaverine 40 mg IV slowly. VAS was used to assess the pain before administering labour analgesia and repeated at 1 hour, 2 hour, 4 hour and at full dilatation of cervix. Overall effect of labour analgesia in relief of pain was categorized as: Excellent: Patient completely relieved of pain. Good: Patient staying still and is aware of uterine contraction as well as experiences dull backache. Fair: Patient has experienced pain for significant part of labour. Poor: Patient disturbed and not relieved of pain. Duration of labour was recorded from time of administration of labour analgesia to delivery of baby and noted. Mode of delivery was also noted and categorized as Normal, Assisted- Ventouse/Forceps or Caesarean. Assessment of neonatal outcome was done using APGAR score in all babies at 1 minute and 5 minute. Side effects or complications were also noted.

RESULTS

Table 1: Age wise distribution of subjects in study group

Age (years)	Number of subjects
≤ 20	26
21-25	56
26-30	16
>30	2
Total	**100**

Table 2: Parity wise distribution of subjects

Parity	Number of subjects
Primigravida	57
Primipara	34
Multipara	9
Total	**100**

Table 3: Cervical dilatation wise distribution of cases

Cervical dilatation	Number of subjects
3	25
4	40
5	35
Total	**100**

Table 4: Visual Analog Score

Time (Hours)	Primigravida (Mean ± SD) (n= 51)	Multigravida (Mean ± SD) (n= 49)	Total (Mean ± SD) (n= 100)
0	7.72 ± 1.19	7.62 ± 0.98	7.68 ± 1.11
1	4.98 ± 1.19	4.98 ± 1.23	4.98 ± 1.19
2	6.6 ± 1.32	6.35 ± 1.51	6.49 ± 1.41
4	8.69 ± 0.67	7.75 ± 0.96	8.47 ± 0.82
Full Dilatation	8.89 ± 0.7	8.27 ± 0.95	8.62 ± 0.87

Table 5: Overall effect of analgesia in study subjects

Overall effect	Number of subjects
Excellent	6
Good	62
Fair	29
Poor	3
Total	**100**

Table 6: Duration of labour in study subjects

Cervical dilatation	Duration of labour (minutes) (Mean ± SD)
3	243.12 ± 50.89
4	210.28 ± 34.28
5	199.8 ± 57.61

Table 7: Mode of delivery in study subjects

Mode of delivery	Number of subjects
Normal Vaginal	96
LSCS	2
Forceps/ Ventouse	2

Table 8: APGAR score at 1 minute in study subjects

APGAR score	Number of subjects
0-5	1
6-7	55
8-10	44

Table 9: APGAR score at 5 minute in study subjects

APGAR score	Number of subjects
0-5	0
6-7	1
8-10	99

Table 10: Side effects in study subjects

APGAR score	Number of subjects
Nausea	10
Sedation	9
Drowsiness	3
Dizziness	5
Vomiting	7
Dryness of mouth	3

DISCUSSION

Present study shows that labour pain as measured by VAS was relieved in an effective manner by Intravenous drug analgesia using Pentazocine, tramadol, diazepam and Drotaverine during labour. Around 68% subjects reported that overall effect of analgesia was good. Recently, a Cochrane review has also reported that Parenteral opioids provide moderate pain relief in labour, but cause sedation, nausea and vomiting in the woman and effects on the newborn are unclear [4]. Desai *et al* [5] also studied Intravenous drug analgesia and found that pain relief was good in 62% patients. Mean duration of labour was found to be reduced in study subjects when compared with standard duration of labour. Similar results were reported by Desai *et al* in their study [5]. The APGAR score is not affected by Intravenous drug analgesia as shown by the study of Meena Jyoti *et al* [6] study and present study. However, vomiting, nausea and drowsiness were among the side effects noted in subjects in our study which was also reported by Meena Jyoti *et al* [6] study.

To conclude, Intravenous drug analgesia using Pentazocine, tramadol, diazepam and Drotaverine can be used as an effective mode of labour analgesia.

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