

A Comparison of efficacy and side effects of Drotaverine hydrochloride and valethamate bromide in augmentation of labour

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Abstract

Objective: To evaluate and compare the effects of Drotaverine hydrochloride and valethamate bromide on cervical dilation and shortening the duration of labour. **Materials & Method:** Total of 100 primigravida patients in second stage of labour were included in the study and were divided into two groups randomly with 50 patients in each. After a detailed history and examination group A women were given injection drotaverine IM every two hours for maximum of 03 doses and group B were given valethamate bromide 8 mg with maximum of 3 doses half hourly apart. Various parameters of duration of labour, mode of delivery, maternal & fetal complications were compared in both groups. **Result:** Injection to delivery interval were significantly reduced in group A compared to group B. The rate of cervical dilation was more in drotaverine group than Valethamate bromide group. There was no major side effects in any group but minor side effects like tachycardia and nausea were more common in Valethamate Bromide group than drotaverine group. **Conclusion:** Both Drotaverine Hydrochloride & Valethamate Bromide are effective in acceleration of active Phase of labour but Drotaverine Hydrochloride accelerates more with less side effects. Reduction of pain during labour is better with Drotaverine Hydrochloride when compared with Valethamate Bromide.

Keywords: Drotaverine, valethamate bromide, labour, cervical dilation.

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Introduction

Labour is a complex physiological process characterized by painful uterine contraction which causes cervical dilation and effacement followed by delivery of fetus. Both the obstetrician and labour patients would like to accomplish the delivery in the shortest possible time without compromising the mother and fetal safety. Various methods are available for augmentation of labour like mechanical methods, sweeping of membranes, cervical stretching and amniotomy. Pharmacological methods including oxytocin, Valethamate Bromide, scopolamine and Drotaverine Hydrochloride have been used for pain relief and shortening of labour to hasten the 1st stage of labour. Among these drugs we selected two drugs Drotaverine Hydrochloride and Valethamate Bromide to compare their efficacy in accelerating the rate of cervical dilatation. In 1960s Drotaverine Hydrochloride was introduced. Drotaverine Hydrochloride is unique smooth muscle relaxant, acts by selectively inhibiting phosphodiesterase IV enzyme which is present in higher concentration in myometrium near term, thus facilitating cervical dilation during labour. Valethamate Bromide is an anticholinergic smooth muscle relaxant. It acts by competitively inhibiting the muscarinic receptors of smooth muscle cell followed by inhibition of phospholipase C and decreases intracellular calcium. The objective of this study was to compare and evaluate the efficacies of Drotaverine Hydrochloride & Valethamate Bromide[1]

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for effacement and cervical dilation.

Material & methods

The study was conducted in NMCH, Patna over a period of 1 year August 2020 to July 2021. 100 primigravida women in established labour with cervical dilation 3 cm or more were chosen. 50 women were given Drotaverine Hydrochloride (group A) and 50 women were given Valethamate Bromide (group B). Drotaverine 40mg IM every two hourly and maximum of 3 doses if necessary and group B 2ml (8mg) of injection Valethamate Bromide every half hourly upto maximum 3 doses at cervical dilation 3-4 cm and stopped at 7 cm or more.

Inclusion and exclusion criteria of the study

Inclusion criteria

- Primigravida
- Age between 18-30
- Intact fetal membrane
- Cervical dilation upto 3-4 cm
- No fetal distress
- No maternal distress
- Regular established uterine contraction

Exclusion criteria

- Multiple pregnancy
- PIH
- Malpresentation
- Post term pregnancy
- Cervical surgery in past
- Drug reaction history

After considering inclusion criteria and taking informed consent patients were examined. On admission detailed history is taken and complete examination general, physical, obstetrical examination was done. Vaginal examination was done to note the cervical dilation and

effacement, station of head, membrane status and adequacy of pelvis. Vaginal examination was done every 4 hourly to assess the progress of labour. The drug was given intramuscularly, these patients were monitored for vital data, rate of cervical dilation, injection dilatation interval, duration of second stage of labour, mode of delivery,

neonatal outcome and side effects to drug and patient satisfaction regarding pain reduction. Data collected were analyzed[2].

Observation Results

Table 1: Comparison of mean duration of active phase of 1st stage of labour, between two groups.

Duration of labour	Group A	Group B
Active phase (Hours)	3.6 ± 0.95	4.8 ± 1.5
Second stage (minutes)	34.74	40.89
Third Stage (minutes)	6.10	6.74

Table 2: Mean cervical dilatation and mode of delivery in two groups

	Group A	Group B
Mean cervical dilatation	2.54cm/hr	2cm/hr
Normal vaginal delivery	44	42
Forceps	1	1
Vacuum	1	2
LSCS	4	5

Table 3: Maternal side effects in two groups

	Group A	Group B
Nausea and Vomiting	2	5
Headache	1	0
Hypotension	4	6
Tachycardia	2	3
Dryness of mouth	2	3

Discussion

Acceleration of labour is considered as an important factor in reducing maternal morbidity as well as neonatal complication. Intramuscular injection of drotaverine in dilatation of cervix in uncomplicated pregnancy significantly reduces duration of labour and number of side effects. Sharma et al (2001) concluded that both are effective in acceleration of labour but Drotaverine Hydrochloride accelerated labour more rapidly with less side effects. In the study conducted by Monika Soni et al (2008) and C. Madhu et al (2009), they proved both the drugs were effective in cervical dilation but Drotaverine Hydrochloride is superior to Valethamate Bromide with less side effects. In the present study the mean duration of active labour phase was 3.6 hours with Drotaverine Hydrochloride and 4.8 hours with Valethamate Bromide. The rate of mean cervical dilation is 2.54 cm/hr with Drotaverine Hydrochloride and 2cm/hr with Valethamate Bromide. Both Drotaverine Hydrochloride & Valethamate Bromide are effective in cervical dilation but Drotaverine Hydrochloride is superior to Valethamate Bromide. Studies done by J. B. Sharma et al S. L. Mishra also supports the findings. There is no significant difference in duration of 2nd and 3rd stage of labour in the present study. In the present study maternal complain like nausea, vomiting, tachycardia and dryness of mouth were more in Valethamate Bromide group. Our findings are similar with findings of SL Mishra et al & Monika et al. It is concluded that overall efficacy of drotaverine was superior to Valethamate Bromide [4,5].

Summary and Conclusion

Undoubtedly drotaverine is superior cervical dilator than valethamate bromide. Its timely administration will greatly reduce the delivery time with minimal side effects. Both the drugs effectively relieve the maternal pain by reducing cervical contractile response and shorten the duration of labour. Drotaverine Hydrochloride is found to be better than Valethamate Bromide in shortening the duration of labour and gives better pain relief with no major side effects.

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