

COMPARISON OF EFFECT OF DROTAVARINE WITH HYOSCINE-N-BUTYL BROMIDE AND VALETHAMATE ON RATE OF CERVICAL DILATATION

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Abstract— The goal of obstetrics is a pregnancy that results in a healthy neonate and minimally traumatized mother. Methods that aim at minimizing the incidence of functional cervical dystocia and cutting short the active phase of first stage of labor are welcomed by both the patient and the obstetrician.

Methods: 200 carefully selected parturient women were divided into

GROUP A:

100 subjects who were given 40mg Drotavarine , i/m,

GROUP B:

100 subjects who were given a combination of 40 mg Hyoscine-n-butyl bromide and 16 mg Valethamate bromide, i/m

The drugs were administered after the subject was in active labor, repeated after 2 hours if full dilatation was not achieved upto 2 doses.

their effect on the duration of labor, rate of cervical dilatation noted.

Result: The mean rate of cervical dilatation was 3.81 ± 1.52 cm/hr in Group A and 2.29 ± 0.64 cm/hr in Group B.

Conclusion: Drotavarine hydrochloride and a combination of Hyoscine-n-Butyl bromide with Valethamate bromide can be used to shorten the duration of active phase of labor, drotavarine was found to be better.

Index Terms- cervical dilatation, drotavarine hydrochloride, hyoscine-n-butyl bromide, labor , valethamate bromide, primigravida, multigravida

1 INTRODUCTION

Labor is one of the most important events in the life of a woman but expectant hope to a large extent is marked by the fear of pain during the process. Painless and short labor is desired by every mother and is a constant aim for obstetricians.⁽¹⁾ The goal of obstetrics is a pregnancy that results in a healthy neonate and minimally traumatized mother. Much of the art of good obstetric care involves the delicate balance of avoiding cesarean delivery and its complications. Methods that aim at minimizing the incidence of functional cervical dystocia and cutting short the active phase of first stage of labor are welcomed by both the patient and the obstetrician.

During pregnancy myometrium remains quiescent, cervix unyielding and reasonably rigid. Coincident with the initia-

tion of parturition, the cervix must soften, yield and become more readily dilatable.

DURATION OF LABOR

STAGE OF LABOR	PRIMIGRAVIDA	
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FIRST			<ul style="list-style-type: none"> The active phase of labor commences at 3 cm dilatation.
(I) LATENT PHASE	6-8hr		<ul style="list-style-type: none"> During active phase of labor the rate of cervical dilatation should not be less than 1 cm/hr.
(II) ACTIVE PHASE	3-5hr		<ul style="list-style-type: none"> A lag time of 4 hrs between slowing of labor and the need for intervention is unlikely to compromise the fetus or the mother and avoids unnecessary intervention.
SECOND	1-1.5hr		<ul style="list-style-type: none"> 15 mins
THIRD	15 mins		<ul style="list-style-type: none"> Vaginal examination should be performed as infrequently as is compatible with safe practice (4 hrs is recommended). Midwives and other personnel managing labor may have difficulty in constructing alert and action lines and it is better to use a partograph with preset lines.

PROLONGED LABOR

There is a general consensus of opinion to classify labor lasting over 24 hours as prolonged labor. This was recognized early in the history of midwifery, leading to the development of an age-old saying 'Dawn should not arise twice upon the same labor'. The active phase of labor is arbitrarily defined as being prolonged when its duration exceeds 18 hours in a primigravida or 12 hours in a multigravida. The definition generally denotes prolongation of the first stage of labor associated with slow dilatation of cervix.⁽²⁾

Prolonged labor leads to high fetomaternal morbidity, thus shortening the duration of labor, without jeopardizing fetal and maternal interests is warranted.⁽³⁾

CERVICAL DILATATION

It has been proved that cervical dilatation is one of the important factors, which determine the duration of labor. It is the result of the driving force of uterine contractions acting against passive tissue resistance.⁽⁴⁾ Failure of cervix to dilate in labor can cause prolonged labor.

During pregnancy there is a pronounced softening of cervix. Factors responsible for this change are increased vascularity and edema of the entire cervix, together with hypertrophy and hyperplasia of cervical glands. Cervix contains a small amount of smooth muscles, although its major component is connective tissue. The cervix undergoes a rearrangement of its collagen rich connective tissue, producing a 12 fold reduction in its mechanical strength at term.

Cervical modifications principally involve changes that take place in collagen, connective tissue and its ground substances. Cervical softening is associated with two complimentary changes:

- Collagen breakdown and rearrangement of collagen fibers
- Alterations in the relative amount of various glycosaminoglycans

The pattern of cervical dilatation that takes place during the course of normal labor takes the shape of sigmoid (Friedman's Partograph⁽⁵⁾)

Later, Friedman's Partograph was refined into an invaluable aid for monitoring the progress of labor. Alert and action lines were introduced⁽⁶⁾. These two lines are invaluable in early recognition of deviations from normal and institution of prompt remedial measures.

The WHO model of partograph^(7,8) was then devised, based on the following principles:

- The latent phase of labor should not last longer than 8 hours.

Popularly known as the Simplified WHO Partograph is the most commonly used aid in the assessment of progress of labor.

There are various mechanical and pharmacological methods to accelerate the process of labor and facilitate cervical dilatation, like:

- Sweeping of membranes and stretching of cervix which cause local release of prostaglandin E2 from chorio-amniotic membranes, decidua and cervix.⁽⁹⁾
- Amniotomy^(10,11) - when the membranes are ruptured, the synthesis of prostaglandins is increased which can induce and modulate labor and cause ripening of cervix.⁽⁹⁾
- Prostaglandins in various formulations for induction of labor, especially PGE₁ (sublingual or vaginal tables) and PGE₂ gel for cervical ripening.
- Oxytocin- its mode of action is mainly stimulation of uterine contractions.⁽¹²⁾ Amniotomy can be combined with oxytocin for better result. It is commonly used for induction and augmentation of labor and is fairly safe and effective.
- Hyoscine-n-butyl bromide and scopolamine - used for pain relief and cervical dilatation resulting in shortening of labor.
- Valethamate bromide - it has neurotropic and muscletropic actions resulting in relaxation of cervical musculature leading to quick dilatation of cervix and shortened labor.
- Drotavarine hydrochloride- acts as an antispasmodic too in addition to causing cervical dilatation.

An ideal antispasmodic for acceleration of cervical dilatation should have:

- Prompt action
- Long lasting action
- Considerably shortens the duration of active phase of labor
- No adverse effects on uterine contractility
- Minimal side effects on the mother and fetus
- Free from unpleasant adverse effects

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AIMS AND OBJECTIVES

1. To compare the effects of Drotavarine hydrochloride and a combination of Hyoscine-N-butyl bromide with Valethamate bromide on the duration of active phase of labor.
2. To evaluate the incidence of side effects on mother and fetus.

MATERIALS AND METHODS

A total of 200 carefully selected parturient women admitted in the Labor room of the Department of Obstetrics and Gynaecology, G.M.C. and Rajindra Hospital, Patiala were included in the present study.

Inclusion criteria:

1. Singleton term pregnancy
2. Cephalic presentation
3. Regular established uterine contractions at the rate of $\geq 2/10$ minutes, each contraction lasting for at least 20 seconds
4. Cervical dilatation of ≥ 4 cm
5. Willingness to participate in the study

Exclusion criteria:

1. Malpresentation
2. Twin pregnancy
3. Cervical surgery in the past or a history of cervical injury
4. Maternal medical disorders
5. Known hypersensitivity to Drotavarine, Hyoscine-n-butyl bromide or Valethamate
6. If any other spasmolytic agent had been used within 48 hours
7. Evidence of fetal or maternal distress
8. Absolute indication for cesarean section
9. Unwillingness to participate in the study

A detailed history was elicited regarding age, marital status and menstrual pattern. Their presenting complaints were recorded like period of amenorrhoea, duration since the onset of labor pain, bleeding or leaking per vaginum and others, if any. Obstetric history was elicited including the outcome of previous pregnancies, history of prolonged labor, retained placenta, need for instrumentation and mode of delivery. Past and family history regarding any major medical disorder were also obtained.

A thorough general and systemic examination was done. On per abdominal examination the height of the uterine fundus, fetal lie and presentation were noted. Frequency and intensity of uterine contractions were monitored for 10 minutes. Fetal well being was monitored by noting the rate, rhythm and regularity of fetal heart sound.

On per vaginum examination, cervical dilatation, effacement and station of presenting part were noted and Bishop's score calculated. Pelvic assessment was done to exclude any pelvic contraction or cephalopelvic disproportion.

The patients were randomly divided into two groups.

GROUP A:

This group included 100 subjects who were given 40mg Drotavarine hydrochloride, i/m, repeated after 2 hours if full dilatation was not achieved (maximum 2 doses).

GROUP B:

This group included 100 subjects who were given a combination of 40 mg Hyoscine-n-butyl bromide and 16 mg Valethamate bromide, i/m, repeated after 2 hours if full dilatation was not achieved (maximum 2 doses).

The drugs were administered after the subject was in active labor, ascertained by regular established uterine contractions at the rate of $\geq 2/10$ minutes, each contraction lasting for at least 20 seconds and cervical dilatation of ≥ 4 cm.

A WHO simplified partograph was plotted for every case to monitor the progress of labor.

Subjects in both the groups were monitored for:

- Fetal well being by auscultating the fetal heart sound every half an hour to note the rate and rhythm.
- Frequency, intensity and duration of uterine contractions.
- Cervical dilatation by per vaginum examination two hourly after first dose and then accordingly.

A low amniotomy was performed.

Progress of labor was assessed by:

- Per abdomen examination by noting the descent of poles of fetal head
- Per vaginum examination for cervical dilatation

Also,

- Close watch on fetal heart rate was kept.
- Side effects of drugs were observed such as maternal tachycardia, dryness of mouth, headache, rise in temperature and flushing of face.
- Mode and time of delivery were noted. After the delivery of placenta cervix and vagina were examined for any trauma.
- Immediate postpartum period was observed.
- APGAR at 1 and 5 minutes after birth and NICU admission were noted.

If at any point during the study there were indications of maternal or fetal distress, the drug under investigation was withdrawn and adjunctive measures to affect the delivery were immediately implemented.

Parameters which were studied included:

- Duration of the active phase of first stage of labor calculated from the time of administration of first dose of the drug to the full dilatation of the cervix.
- Rate of cervical dilatation.
- Duration of second stage of labor calculated from the time of full dilatation of the cervix to the delivery of the baby.
- Duration of third stage of labor calculated from the time of delivery of the baby to the expulsion of the placenta and membranes.
- Mode of delivery noted as vaginal, instrumental or cesarean section.
- Duration of drug-delivery interval calculated from the time of administration of the first injection till the delivery of the baby.
- Any complication of the third stage of labor such as prolonged duration, post partum hemorrhage, retained placenta and cervical tear.
- Maternal complications, if any.

- Fetal outcome noted by observing the APGAR score at 1 and 5 minutes of birth and NICU admission, if any.

The data thus obtained was meticulously recorded on Per-forma which was then compiled, tabulated and analyzed by Chi square statistics for both the groups. The observations and results were compared.

OBSERVATIONS AND RESULT

in both the groups the majority of cases were between 21-30 years of age. The mean age was 24.38±3.123 years in Group A and 23.25±2.88 years in Group B. In Group A, there were 45% primigravidae and 55% multigravidae. In Group B, there were 51% primigravidae and 49% multigravidae. The subjects in Group A had the mean period of gestation as 38.56±1.03 weeks and in Group B it was 38.69±0.90 weeks. The drugs were administered when labor was established with ≥2 uterine contractions per 10 minutes and cervical dilatation was ≥4 cm.

Mean cervical effacement at the time of administration of the first dose of the drug in both the groups was 60-70%. (Group A (61.20±10.37%) and Group B (60.20 ±10.04%)). 98% subjects in each group were delivered vaginally without any aid. LSCS was done for 2% subjects in each group.

In Group A, 2 primigravidae were taken up for LSCS due to fetal bradycardia after administration of the first dose of Drotavarine. In Group B, 1 primigravida was taken up for LSCS due to fetal bradycardia and 1 multigravida had uterine inertia despite oxytocin augmentation after 2 doses of the investigational drugs. The subjects who underwent LSCS were then eliminated from further observation. There was no instrumental delivery in either of the groups.

NUMBER OF DOSES OF DRUG ADMINISTERED

DOSES OF DRUG	GROUP A (N=98)		GROUP B (N=98)	
	No.	%age	No.	%age
1	64	65.3%	17	17.3%
2	36	36.7%	81	82.6%
Mean±S.D.	1.36±0.48 dose		1.83±0.37 dose	
p value	<0.001			
Significance	HS			

(4 subjects were excluded from the observation as they underwent LSCS)

In Group A, 65.3% subjects delivered after a single dose of the drug and 36.7% required a second dose. In Group B, only 17.3% subjects delivered after a single dose of the drug whereas majority (82.6%) required a second dose. The mean re-

quirement of drug in Group A was 1.36±0.48 doses whereas in Group B it was 1.83±0.37 doses. We observed that the subjects in Group B more often needed a second dose and the difference was found to be statistically significant (p<0.001).

RATE OF CERVICAL DILATATION

RATE OF CERVICAL DILATATION (cm/hr)	GROUP A (N=98)		GROUP B (N=98)	
	No.	%age	No.	%age
<1	0	0%	1	1.02%
1-1.5	6	6.12%	7	7.14%
1.5- 2	8	8.16%	33	33.67%
2- 2.5	4	4.08%	26	26.53%
2.5- 3	22	22.44%	23	23.46%
3-3.5	6	6.12%	5	5.10%
3.5- 4	21	21.42%	3	3.06%
≥4	31	31.63%	0	0%
Mean ± S.D	3.81±1.52		2.29±0.64	
p value	<0.001			
Significance	HS			

(4 subjects were excluded from evaluation as they underwent LSCS)
The above table shows the rate of cervical dilatation in both the study groups. The rate of cervical dilatation was ≥2 cm/hr in 85.69% subjects in Group A and 58.15% subjects in Group B. The mean rate of cervical dilatation in Group A was 3.81±1.52 cm/hr and in Group B it was 2.29±0.64 cm/hr. The cervical dilatation progressed more speedily with Drotavarine with the difference being statistically significant between the two groups (p<0.001).

RATE OF CERVICAL DILATATION IN PRIMIGRAVIDA SUBJECTS

RATE OF CERVICAL DILATATION (cm/hr)	GROUP A (N=45)		GROUP B (N=51)	
	No.	%age	No.	%age
<1	0	0%	0	0%
1-1.5	5	11.11%	7	13.72%
1.5- 2	4	8.88%	15	27.77%
2- 2.5	2	4.44%	14	27.45%
2.5- 3	11	24.44%	11	21.56%
3-3.5	2	4.44%	2	3.92%
3.5- 4	10	22.22%	0	0%
≥4	9	20.00%	0	0%
Mean ± S.D.	3.5±1.31 cm/hr		2.13±0.572 cm/hr	
p value	<0.001			
Significance	HS			

(2 subjects from Group A and 1 from Group B were excluded from evaluation as they underwent LSCS)

As shown in the above table, 75.54% primigravidae in Group A progressed with cervical dilatation at a rate of ≥2 cm/hr whereas only 52.93% subjects in Group B progressed with this rate of cervical dilatation.

Among primigravidae, the mean rate of cervical dilatation was 3.35±.31 cm/hr in Group A and 2.13±0.572 cm/hr in Group B. The difference was statistically significant (p<0.001) between the two groups.

RATE OF CERVICAL DILATATION IN MULTIGRAVIDA SUBJECTS

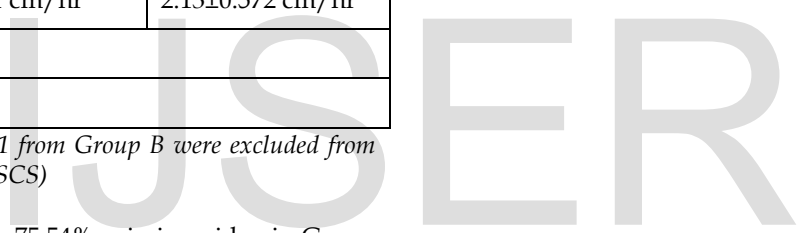
RATE OF CERVICAL DILATATION (cm/hr)	GROUP A (N=55)		GROUP B (N=49)	
	No.	%age	No.	%age
<1	0	0%	1	2.04%
1-1.5	1	1.81%	0	0%
1.5- 2	4	7.27%	18	36.73%
2- 2.5	2	3.63%	12	24.48%

2.5- 3	11	20.00%	12	24.48%
3-3.5	4	7.27%	3	6.12%
3.5- 4	11	20.00%	3	6.12%
≥4	22	40.00%	0	0%
Mean ± S.D.	4.17±1.589 cm/hr		2.46±0.676 cm/hr	
p value	<0.001			
Significance	HS			

(1 subject from Group B was excluded from evaluation as she underwent LSCS)

As depicted in the above table, among multigravidae, 90.90% subjects in Group A as compared to only 61.20% in Group B had the rate of cervical dilatation ≥2 cm/hr.

The mean rate of cervical dilatation in multigravida subjects was 4.17±1.58 cm/hr in Group A and 2.46±0.67 cm/hr in Group B. The difference was statistically significant (p<0.001).



DRUG DELIVERY INTERVAL

DRUG- DELI- VERY INTER- VAL (min)	GROUP A (N=98)		GROUP B (N=98)	
	No.	%age	No.	%age
<60	1	1.02%	0	0%
60- 90	16	16.32%	0	0%
90- 120	29	29.59%	3	3.06%
120- 150	22	22.44%	13	13.26%
≥150	32	32.65%	82	83.67%
Mean ± S.D.	145.10±63.22 min		202.09±60.35 min	
p value	<0.001			
Significance	HS			

(4 subjects were excluded from the observation as they underwent LSCS)

As shown in the above table, 55.91% subjects delivered within 120 mins (2 hrs) of administration of drug in Group A as compared to only 3.06% in Group B where majority of subjects (83.67%) took more than 150 mins (2.5 hours) for delivery of the fetus as compared to 32.65% in Group A. The mean drug-delivery interval was 145.10 ± 63.22 mins in Group A and 202.09± 60.35 mins in Group B. The result was statistically significant (p<0.001).

DISCUSSION

Labor is one of the most important events in a woman’s life. Prolonged labor has implications for both the mother and the fetus. Reducing the length of labor is a highly desirable goal of intrapartum care, from a perspective of both maternal and fetal well being.⁽¹³⁾

The revolution in this care reached a milestone with the conceptualization of the idea of ‘Active management of labor’ by O’Driscoll in 1973. Since then, active management of labor has gone a long way in reducing maternal morbidity and perinatal morbidity and mortality.

Cervical dilatation is one of the important factors which determines the duration of labor and is resultant of all driving forces of uterine contractions acting against passive tissue resistance.⁽⁴⁾ Cervical ripening, expressed as remodeling of the cervical connective tissue, has been proven to be necessary for an uncomplicated vaginal delivery.⁽¹⁴⁾

It has been proven that relieving the pain and shortening the duration of active phase of labor will have a significant beneficial effect on the mother and fetus. Various drugs have been tried to hasten the cervical dilatation and minimize the pain without increasing maternal or perinatal mortality and morbidity. Drotavarine hydrochloride, Valethamate bromide and Hyoscine-N-butyl bromide have been studied extensively in

the past.

MEAN RATE OF CERVICAL DILATATION

STUDY	GROUP A (cm/hr)	GROUP B (cm/hr)
Sharma et al (2001) ⁽¹⁵⁾	2.04	1.84
Madhu et al (2010) ⁽¹⁷⁾	3±1.4	2.4±0.9
Nagaria et al (2009) ⁽¹⁶⁾	3.38	2.17
Naga et al (2014) ⁽²¹⁾	1.97	1.45
Present study (2016)	3.81±1.52	2.29±0.64

The mean rate of cervical dilatation in our study was 3.81±1.52 cm/hr in Group A and 2.29±0.64 cm/hr in Group B. Drotavarine hastened the rate of cervical dilatation more than the other drug as seen in the studies conducted by Sharma et al⁽¹⁵⁾, Nagaria et al⁽¹⁶⁾, Madhu et al⁽¹⁷⁾ and Naga et al⁽²¹⁾.

The result was better with i/m Drotavarine in the present study than with i/v Drotavarine in the study conducted by Naga et al.⁽²¹⁾ The result was better in the present study where 2 doses of Drotavarine were administered as compared to that of Sharma et al⁽¹⁵⁾ where only a single dose was given.

In the other group, the rate of cervical dilatation was more with the combination drugs, as shown in our study, when given 2 doses 2 hours apart in the dose of 16mg Valethamate bromide and 40mg Hyoscine-N-butyl bromide as compared to the study conducted by Naga et al⁽²¹⁾ who used 8mg Valethamate with 40mg Hyoscine-N-butyl bromide half hourly for 3 doses. The results in our study with the combination of drugs were better than when the drugs were used individually as in the studies conducted by Madhu et al⁽¹⁷⁾, Sharma et al⁽¹⁵⁾ and Nagaria et al.⁽¹⁶⁾

MEAN RATE OF CERVICAL DILATATION IN PRIMI- GRAVIDA SUBJECTS

STUDY	GROUP A (cm/hr)	GROUP B (cm/hr)
Sharma et al (2001) ⁽¹⁵⁾	2.04	1.84
Nagaria et al (2009) ⁽¹⁶⁾	2.89	2.01
Kaur et al (2013) ⁽¹⁸⁾	3.06±0.98	2.28±0.89
Jayshree et al (2013) ⁽¹⁹⁾	3.31±1.07	2.58±0.91
Present study (2016)	3.35±1.31	2.13±0.57

Among the primigravidae in our study, the mean rate of cervical dilatation was 3.35±1.31 cm/hr in Group A and 2.13±0.57 cm/hr in Group B.

The result in our study was comparable to the studies of Nagaria et al⁽¹⁶⁾ and Jayshree et al.⁽¹⁹⁾ Sharma et al⁽¹⁵⁾ also observed a better result in Group A but the mean rate of cervical dilatation was less as compared to other studies as they used a

single dose of the drug in each group. Kaur et al⁽¹⁸⁾ also reported similar results though their Group A had anafortan instead of Drotavarine and Group B had the same combination of drugs as in our study.

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**MEAN RATE OF CERVICAL DILATATION IN MULTI-
GRAVIDA SUBJECTS**

STUDY	GROUP A (cm/hr)	GROUP B (cm/hr)
Nagaria et al (2009) ⁽¹⁶⁾	3.71	2.61
Kaur et al (2013) ⁽¹⁸⁾	3.59±1.02	3.03±1.02
Jayshree et al (2013) ⁽¹⁹⁾	3.71±1.60	2.61±0.98
Present study (2016)	4.17±1.58	2.46±0.67

The mean rate of cervical dilatation in the multigravidae in the present study was 4.17±1.58 cm/hr in Group A and 2.46±0.67 cm/hr in Group B. Drotavarine was seen to increase the rate of cervical dilatation more as compared to the other drug as seen in the studies of other authors.^(16,19) Kaur et al⁽¹⁸⁾ also reported better result in Group A though the drug they used was anafortan but the mean rate of cervical dilatation in Group B was comparable to the present study as they used the same combination of drugs.

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NUMBER OF DOSES OF DRUG REQUIRED FOR SUCCESSFUL DELIVERY

STUDY	GROUP A (doses)			GROUP B (doses)		
	1	2	3	1	2	3
Sharma et al (2001) ⁽¹⁵⁾	10%	66%	24%	-	6%	94%
Patil et al (2015) ⁽²²⁾	62%	30%	8%	12%	30%	58%
Selvaraj et al (2016) ⁽²³⁾	-	96%	4%	-	-	98%
Present study (2016)	64%	36%	-	17%	81%	-

In our study, in Group A, 64% patients delivered with a single dose of Drotavarine whereas 36% required a second dose. In Group B, 17% patients delivered after the first dose of the drug and 81% after the second dose.

The result is comparable to the studies of Patil et al⁽²²⁾ where majority of the patients delivered after a single dose of Drotavarine as in our study. In Group B more number of subjects (98%) delivered after two doses of the combination of the drugs in our study as compared to 42% in the study of Patil et al⁽²²⁾ where they administered Valethamate bromide alone.

In Group A, Sharma et al⁽¹⁵⁾ and Selvaraj et al⁽²³⁾ observed that the majority of subjects needed a second dose of the drug as they studied the effect in primigravidae only.

In Group B, other authors^(15,24,23) observed that majority of subjects delivered after a minimum of three doses of Valethamate bromide in a dose of 8mg whereas in the present study 16mg Valethamate bromide with 40mg Hyoscine-N-butyl bromide was given in 2 doses 2 hours apart which resulted in successful vaginal delivery in 81% patients. It can be concluded that this dosage regime is also effective.

DRUG- DELIVERY INTERVAL

STUDY	GROUP A (minutes)	GROUP B (minutes)
Sharma et al (2001) ⁽¹⁵⁾	194±57.04	220.7±86.12
Nagaria et al (2009) ⁽¹⁶⁾	135.87±85.94	200.13±15.04
Madhu et al (2010) ⁽¹⁷⁾	183.2	206.5
Dahal et al (2013) ⁽²⁰⁾	192.56±75.47	249.13±88.32
Selvaraj et al (2016) ⁽²³⁾	219.6±37.9	274.84±29.09
Present study (2016)	145.10±63.22	202.09±60.35

In our study, the drug- delivery interval was 145.10±63.22 mins in Group A and 202.09±60.35 mins in Group B. Drotavarine hastens the process of labor as compared to other drugs as seen in the studies of other authors.^(15,16,17,20,23) In the present

study when Drotavarine was given in 2 doses 2 hours apart the result was better than when given in a single dose by Sharma et al.⁽¹⁵⁾

The drug delivery interval was longer in the studies of Selvaraj et al⁽²³⁾ and Sharma et al⁽¹⁵⁾ as they studied the effect of the drugs in primigravidae alone. The drug delivery interval was slightly better with a combination of Valethamate bromide and Hyoscine-N-butyl bromide in the present study as compared to when the drugs were given individually in the studies of Selvaraj et al⁽²³⁾, Madhu et al⁽¹⁷⁾, Sharma et al⁽¹⁵⁾ and Nagaria et al.⁽¹⁶⁾ The sample size in the studies of Madhu et al⁽¹⁷⁾ and Dahal et al⁽²⁰⁾ were small, but Drotavarine was found to have a shorter drug delivery interval than the other group.

CONCLUSION

It can be concluded that,

these drugs namely, Drotavarine hydrochloride and a combination of Hyoscine-n-Butyl bromide with Valethamate bromide can be used to shorten the duration of active phase of labor in both primigravidae and multigravidae. Drotavarine as found to be a better drug for enhancing the rate of cervical dilatation, hence, can be used to reduce the agony of the laboring woman without any significant side effects on the mother or the fetus.



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