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ORIGINAL ARTICLE

HYOSCINE BUTYL BROMIDE VERSUS DROTAVERINE HYDROCHLORIDE IN ACTIVE STAGE OF LABOUR-A COMPARATIVE STUDY OF RATE OF CERVICAL DILATATION

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ABSTRACT: AIM: This study was conducted to compare the rate of cervical dilatation with hyoscine butyl bromide and drotaverine hydrochloride in active stage of labour. **MATERIALS AND METHODOLOGY:** This prospective study was conducted in the department of Obstetrics and Gynaecology. **Inclusion Criteria:** 1. All women with initial cervical dilatation of 3 cms. 2. When there is a slow rate of cervical dilatation of less than 1.5 cms per hour or decent of less than 1 cm per hour for nulliparous and if dilatation was less than 2cms per hour for a multigravida. 3. And all singleton and cephalic pregnancies were included in this study. **Exclusion Criteria** included complications like Antepartum haemorrhage, Breech, C.P.D. In this study 400 women were allocated into two groups to receive either Hyoscine butyl bromide or Drotaverine hydrochloride. Two hours after admission in the active stage of labour, progress of labour was reassessed. If the progress of labour was satisfactory, then the wait and watch policy was adopted. If there was no progress they were administered one of the two drugs. 200 patients were administered 10mg of hyoscine butyl bromide suppositories rectally, (GROUP-1) AND THE OTHER 200 WITH 40mg of drotaverine hydrochloride intravenously (GROUP-2). The progress of labour was monitored by the partogram. Not more than 3 doses of hyoscine butyl bromide were administered. **RESULTS:** The rate of cervical dilatation was 2 cms per hour in group 1 (Hyoscine butyl bromide) as compared to 1cm per hour in group 2 (Drotaverine hydrochloride). The difference in rate of cervical dilatation in both the groups was statistically significant. **CONCLUSION:** There was significant improvement in the rate of cervical dilatation with Hyoscine butyl bromide group of patients. There was a significant reduction in the duration of active stage of labour, and there was no significant second and third stage complication when these drugs were used. No untoward side effects were noted when these drugs were used in the mother or fetus.

KEYWORDS: Labour, Hyoscine butyl bromide, Drotaverine hydrochloride, Duration of active stage of labour, Rate of cervical dilatation.

INTRODUCTION: The normal labour is defined as the spontaneous onset of regular painful uterine contractions associated with the effacement and dilatation of cervix and decent of the presenting part.[1] The normal first stage of labour consists of an initial latent phase, when there is effacement and dilatation of cervix from 0-3cm followed by the active phase of labour, when the cervix dilates at the rate of 1cm per hour in nullipara and 1.5 cm in a multipara. The average length of active phase is 6 hours in nulliparas and 3hours in multiparas, with the limits of normal being 12 hours.

The duration of labour depends on the cervical dilatation and decent of the fetal head. Active labour can be reliably diagnosed when cervical dilatation is 3cm or more in the presence of uterine contractions.[2]

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The normal mechanism of cervical dilatation involve changes in the connective tissues which contains fibrillar and nonfibrillar components. The fibrillar components are composed of collagen and elastin, Proteoglycans, Glycoprotein as Fibronectin. The non fibrillar components are designated as ground substance Cervix is made up of 80% of type 1 collagen and type 2 collagen fibre. Physiological importance of collagen is that the cervical dilatation time during spontaneous labour was prolonged in women with high concentrations of collagen and quicker in women in women with lower concentration of collagen.[3]

Hyoscine butyl bromide is a quaternary ammonium compound that is a competitive agonist at the muscarinic receptor. It is available as oral, injectables and as suppository formulation. Oral tabs are available as 10mg, parenteral as 20mg/ml in ampoule and suppository as 10mg respectively. Hyoscine butyl bromide acts as an effective antispasmodic with a high safety profile.[4]

Hyoscine butyl bromide should be administered when the cervical os is 3cms and when there are regular and strong uterine contractions. It offers a well marked relaxation of the cervical os in 5-10minutes.[5] This results in prompt cervical relaxation when there is undue rigidity of the os and further progress of labour is facilitated. This is accomplished by well marked increase in the uterine contractions because of the synergism between sympathetic and parasympathetic action.[6]

It was found to relieve the pain in patients suffering from from spastic after pains. It has also been used in cases of incomplete or inevitable abortion.It facilitates rapid dilatation of the os.[7]

Drotaverine is a derivative of perparine, which emerged as a more potent spasmolytic and is superior in its efficiency and also more reliable after oral administration. Drotav erine directly acts on the smooth muscle by increasing the CAMP, which results in relaxation.[8]

Drotaverine is found to benefit by its spasmolytic action and vasodilator effect.[7] It is available as tablet containing 40mg and 80mg.Dose in labour is 40mg IM or IV which can be repeated after 2 hours, maximum dose being 120mg.

MATERIALS AND METHODOLOGY: This prospective study was conducted in the department of Obstetrics and Gynaecology.

INCLUSION CRITERIA:

1. All women with initial cervical dilatation of 3 cms.
2. When there is a slow rate of cervical dilatation of less than 1.5 cms per hour or decent of less than 1 cm per hour for nulliparous and if dilatation was less than 2cms per hour for a multigravida.)
3. And all singleton and cephalic pregnancies were included in this study.

Exclusion criteria included complications like Antepartum haemorrhage, Breech, C.P.D.

In this study 400 women were allocated into two groups to receive either Hyoscine butyl bromide or Drotaverine hydrochloride.

Two hours after admission in the active stage of labour, progress of labour was reassessed. If the progress of labour was satisfactory, then the wait and watch policy was adopted. If there was no progress they were administered one of the two drugs.

200 patients were administered 10mg of hyoscine butyl bromide suppositories rectally, (GROUP-1) AND THE OTHER 200 WITH 40mg of drotaverine hydrochloride intravenously (GROUP-2).

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The progress of labour was monitored by the partogram. Not more than 3 doses of hyoscine butyl bromide were administered.

RESULTS: This prospective study was conducted in the dept. of Obstetrics and Gynaecology.

GRAVIDA	GROUP 1 HBB		GROUP 2 DROTAVERINE	
	NO	%	NO	%
PRIMI	89	44.5	80	40%
2 GRAVIDA	80	40%	85	42.5%
3 GRAVIDA	31	5.5%	35	17.5%
GRAVIDITY DISTRIBUTION				

The above table shows that the majority are 2nd gravidas.

GROUP 1-HYOSCINE BUTYL BROMIDE					**GROUP 2-DROTAVERINE HYDROCHLORIDE**				
AMPOULES	PRIMI (N-89)		MULTI (N-111)		AMPOULES	PRIMI (N-80)		MULTI (N-120)	
	NO	%	NO	%		NO	%	NO	%
1(10 MG)	31	34.83%	66	59.45%	1(40) MG	28	35%	32	26.6%
2(20 MG)	58	65%	45	40.5%	2(80)MG	26	32.5%	45	37.5%
3	-	-	-	-	3(120)	26	32.5%	43	35.83%
TOTAL NO. OF DOSES RECEIVED IN EACH GROUP									

It was observed that amongst primigravida all delivered with 2 doses in group 1 whereas group2 required 3 doses.In multi gravid it was seen that 59.4% of women in group 1 delivered with 1 dose whereas only 26.6% delivered with 1 dose in group 2.

GROUPS	**GRAVIDA**	**AVERAGE DURATION OF ACTIVE PHASE IN HOURS**
GROUP-1 HYOSCINE BUTYL BROMIDE	PRIMI	3.59
	MULTI	3.00
GROUP 2 DROTAVERINE HYDROCHLORIDE	PRIMI	5.00
	MULTI	4.00
DURATION OF ACTIVE PHASE		

The difference in average duration of active phase was significant between the 2 groups.

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GROUPS	GRAVIDA	RATE OF CERVICAL DILATATION IN CMS PER HOUR
GROUP 1: HYOSCINE BUTYL BROMIDE	PRIMI	2 CM/HR
	MULTI	3CM/HR
GROUP 2: DROTAVERINE HYDROCHLORIDE	PRIMI	1CM/HR
	MULTI	2CM/HR

RATE OF CERVICAL DILATATION

The rate of cervical dilatation was 2 cms per hour in group 1 as compared to 1cm per hour in group 2. The difference in rate of cervical dilatation in both the groups was statistically significant.

GROUPS	GRAVIDA	FETAL DISTRESS		ARREST OF DESCENT		INCOORDINATE UTERINE ACTION		TRANSVERSE ARREST		FAILED INDUCTION		
		NO	%	NO	%	NO	%	NO	%	NO	%	%
HYOSCINE BUTYL BROMIDE	PRIMI	2	2.247	2	2.1%	2	2.247	2	2.247	8	8.9	8.9%
	MULTI	1	0.9%	2	1.80%	2	1.801	2	1.801%	9	5.59	8..10%
DROTAVERINE HYDROCHLORIDE	PRIMI	1	0.9%	1	0.9	4	5%	3	3.75%	6	7.5	7.5%
	MULTI	2	1.6%	2	0.8%	3	2.5%	2	0.8%	9	7.5	9.16%

INDICATIONS FOR LSCS

SECOND & THIRD STAGE COMPLICATIONS	HYOSCINE BUTYL BROMIDE				DROTAVERINE HYDRO CHLORIDE			
	PRIMI		MULTI		PRIMI		MULTI	
	NO	%	NO	%	NO	%	NO	%
FETAL DISTRESS	2	2.24	1	0.9	1	0.9	2	1.6
ATONIC PPH	1	1.1%	1	0.9%	2	1.6%	1	.83%
CERVICAL TEARS	4	4.49%	8	7.207%	2	2.5%	1	1.25%

SECOND AND THIRD STAGE COMPLICATIONS

It was observed that the incidence of cervical tears was higher in primi with hyoscine butyl bromide as compared to drotaverine hydro chloride. This difference is not statiscally significant.

COMPLICATIONS	HYOSCINE BUTYL BROMIDE		DROTAVERINE HYDROCHLORIDE	
	NO	%	NO	%
MATERNAL TACHYCARDIA	13	6.5	8	4
NAUSEA	16	8	13	6.5
VOMITING	18	9	14	7
DRYNESS OF MOUTH	2	1	3	1.5

MATERNAL COMPLICATIONS

The hyoscine butyl bromide group had 24.5% of complications when compared with drotaverine hydrochloride which had 19%.

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DISCUSSION: The main emphasis is on early delivery. Hence the present study was planned to reduce the duration of active stage of labour by promoting cervical dilatation.

This prospective study included 400 women, and the following observations were made.

Majority of the patients in this study were multigravida. There was no significant difference between the groups in relation to parity. In the present study the average duration of active phase of Hyoscine butyl bromide was 2.49hours in primi and 2 hours in multi and in drotaverine hydrochloride group it was 3.59 hours in a primi and 3.1 hours in a multi. Hyoscine butyl bromide when compared with drotaverine hydrochloride group showed reduction in active phase of labour.

In this study majority of the patients delivered with 1 dose in a multi and 2 doses in a primi with hyoscine butyl bromide whereas in drotaverine group 33%of patients delivered with 3 doses. In the present study there was no significant difference in the duration of II nd stage of labour in both the groups. In the present study spontaneous vaginal delivery occurred in 73% of patients and 10% delivered with the aid of instrument and 17% delivered by lscs.

Failed induction was the commonest second stage complication noted in the hyoccine butyl bromide group. It was observed that the incidence of cervical tears were comparatively higher in the hyoscine butyl bromide group of patients. Five minute apgar score was similar in both groups and was not affected by the drugs.

The most common complication in both the groups were vomiting and the other common complication was nausea and dryness of mouth which was statically not significant.

CONCLUSION: There was significant improvement in the rate of cervical dilatation with Hyoscine butyl bromide group of patients. There was no significant second and third stage complication when these drugs were used. No untoward side effects were noted when these drugs were used in the mother or fetus.

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