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Original Research

Assessment of outcome of different concentration of Hyoscine Butylbromide on course of labor

Dr. Nutan Verma[1], Dr. Deepika Verma[2]

[1]Consultant Gynaecologist, PDU Medical College Churu, Rajasthan, India;
[2]ESIC Medical College Alwar, Rajasthan, India

ABSTRACT:
Background: Hyoscine butyl bromide (Buscopan) is being used as an agent for reducing the duration of labour. The present study was conducted to compare effect of different concentration of Hyoscine Butylbromide on course of labor. **Materials & Methods:** The present study was conducted 60 prim gravid women with term gestation. All were divided into 2 groups of 30 each. In group I 40 mg of intra-venous HBB in the early active phase of labor was given and in group II 60 mg of intra-venous HBB was given. **Results:** Each group had 60 patients each. Group I patients were given 40 mg of intra-venous HBB and group II received 60 mg of intra-venous HBB. The mode of delivery in group I was abdominal seen in 20 and 16 in group II. It was vaginal seen 40 in group I and 44 in group II. The difference was non- significant (P> 0.05). APGAR score at 1st minute in group I was 8.0 and in group II was 8.2, APGAR score at 5th minute in group I was 8.2 and in group II was 8.4. Estimated blood loss in group I was 324 ml and in group II was 356 ml, injection to delivery time in group I was 324 minutes and in group II was 3124 minutes, rupture of membranes to delivery was 106 minutes in group I and 124 minutes in group II. The difference was non- significant (P> 0.05). **Conclusion:** HBB is effective in significantly reducing the duration of the first stage of labor at both concentrations without any major adverse effects
Key words: Prolonged Labour, Hyoscine Butyl Bromide, Mother

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Corresponding author: Dr. Deepika Verma, ESIC Medical College Alwar, Rajasthan, India

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INTRODUCTION

The management of normal labor is both an art and a science. For decades, health providers have worked to manage labor actively and safely, with the goal of shortening the duration of painful labor. Reduction of Cesarean sections and other fetal and maternal complications is also an important aspect of labor management. Prolonged labour and its attendant complications contribute immensely to the high maternal morbidity and mortality recorded in the developing countries. Although there is a wide variation in the duration of labour, it has been found that there is an acceptable period that is considered normal. The range for the duration of normal labour is from 3 to 12 hours. Labour lasting less than 3 hours is classified as precipitate labour while that exceeding 12 hours is said to be prolonged. The two major factors that determine duration of labor are uterine contractility and rate of cervical dilation.[1,2] In addition to mechanical factors such as sweeping of membranes, cervical stretching and amniotomy, various pharmacological agents have been found to facilitate cervical dilation. The role of oxytocin and prostaglandins has been established worldwide in augmentation of labor and the cervical application of hyaluronidase has also been used with some success.[3]

Labor usually starts within 2 weeks of (before or after) the estimated date of delivery. Exactly what causes labor to start is unknown. On average, labor lasts 12 to 18 hours in a woman's first pregnancy and tends to be shorter, averaging 6 to 8 hours, in subsequent pregnancies. Every woman's labor is different.[4]

Hyoscine butylbromide (HBB) belongs to the parasympatholytic group of drugs and is a semisynthetic derivative of scopolamine. It is an

effective antispasmodic drug without the untoward side effects of atropine. HBB is a quaternary ammonium compound and has peripheral anticholinergic action, but no central action as it does not cross the blood–brain barrier. HBB acts primarily by blocking the transmission of neural impulses in the intraneural parasympathetic ganglia of abdominal organs, apparently inhibiting cholinergic transmission in the synapses of the abdominal and pelvic parasympathetic ganglia, thus relieving spasms in the smooth muscles of gastrointestinal, biliary, urinary tract, and female genital organs, especially the cervico-uterine plexus, thus aiding cervical dilatation. [5] The present study was conducted to compare effect of different concentration of Hyoscine Butylbromide on course of labor.

MATERIALS & METHODS

The present study was conducted in the department of Obstetrics & Gynaecology. It comprised of 120 prim gravid women with term gestation. Ethical approval was obtained from institute prior to the study. All were informed regarding the study and written consent was obtained.

Data such as name, age etc. was recorded. All were divided into 2 groups of 30 each. In group I 40 mg of intra-venous HBB in the early active phase of labor was given and in group II 60 mg of intra-venous HBB was given. In both groups, gestational age, APGAR score at 1st minute, 5th minute, blood loss, mode of delivery etc. was compared. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table 1: Distribution of patients

Groups	Group I (40 mg HBB)	Group II (60 mg HBB)
Number	60	60

Table I shows that each group had 30 patients each. Group I patients were given 40 mg of intra-venous HBB and group II received 60 mg of intra-venous HBB.

Table 2: Mode of delivery

Mode	Group I	Group II	P value
Vaginal	40	44	0.21
Abdominal	20	16	

Table 2 shows that mode of delivery in group I was abdominal seen in 20 and 16 in group II. It was vaginal seen 40 in group I and 44 in group II. The difference was non- significant (P> 0.05).

Table 3: Comparison of parameters

Parameters	Group I	Group II
APGAR score at 1st minute	8.0	8.2
APGAR score at 5th minute	8.2	8.4
Estimated blood loss (ml)	324	356
Injection to Delivery time (mins)	324	314
Rupture of membranes to Delivery (mins)	106	124

Table 3 shows that APGAR score at 1st minute in group I was 8.0 and in group II was 8.2, APGAR score at 5th minute in group I was 8.2 and in group II was 8.4. Estimated blood loss in group I was 324 ml and in group II was 356 ml, injection to delivery time in group I was 324 minutes and in group II was 3124 minutes, rupture of membranes to delivery was 106 minutes in group I and 124 minutes in group II. The difference was non-significant (P> 0.05).

DISCUSSION

The goal of obstetrics has always been a pregnancy which results in a healthy infant and minimally traumatized mother. The problems of prolonged labour are many. A painless and short duration is a cherished dream of every mother. There has been growing attempt to shorten labour time since the process of labour puts great strain on the mother and her fetus. These includes; active management of labour, sweeping of membranes, cervical stretching and amniotomy.[6,7]

Hyoscine N-butyl bromide has been in usage for more than half a century in varying doses (20mg, 30mg, 40mg, 60mg) and varying routes (intramuscular, intravenous, rectal, oral). Corsen et al,[10] studied the various uses and modes of action of HBB in obstetrics and gynecology, and found that most prompt action occurred with intravenous and suppository routes, optimal time of administration was at 2.5-3 cm cervical dilatation and no significant side effects were observed with up to 30 mg dose.

The role of HBB as an analgesic has not been evaluated despite the fact that the same pathways which mediate cervical dilation mediate pain

After intravenous administration, the substance is rapidly distributed (t1/2= 29 minutes) into the tissues. Hyoscine butylbromide does not pass the blood-brain barrier, and plasma protein binding is low; approximately half of the clearance is renal, and the main metabolites found in urine bind have no significant clinical action.[8] The present study was

conducted to compare effect of different concentration of Hyoscine Butylbromide on labor.

In this study, each group had 30 patients each. Group I patients were given 40 mg of intra-venous HBB and group II received 60 mg of intra-venous HBB. Singh et al[9] conducted a prospective study on 120 women with term gestation; in active labor. The patients were chosen by simple randomization and were divided into 3 groups- A, B and C respectively of 40 patients each. Group A received intramuscular injection drotaverine hydrochloride one ampule (40 mg), group B received intramuscular injection hyoscine butylbromide (20 mg) and group C which was control group, received no drug. The mean rate of cervical dilatation with buscopan was 2.23cm/hr while it was 2.03cm/hr and 2.08cm/hr in drotaverine group and control group respectively. Thus the drug delivery interval was less in buscopan group. Mean duration of active phase of first stage of labor was 156.13 minutes in buscopan group against 181.25 minutes in drotaverine group though buscopan was found to have less effect on duration of second stage of labor.

We found that the mode of delivery in group I was abdominal seen in 20 and 16 in group II. It was vaginal seen 40 in group I and 44 in group II. The difference was non- significant (P> 0.05). Wanjala et al[10] conducted a study in which a total of 114 primigravid women were recruited into the study and randomized into the control arm (n=59) and study arm (n=55). The 40mg and 60mg arms were comparable for socio-demographic and obstetric characteristics. Injection to delivery time was 340 (223–483) minutes in the 40mg arm and 305 (253–475) minutes in the 60mg arm, a difference that is not statistically significant (p=0.905). Seven (12 %) and five (9 %) of patients in the 40mg and 60mg arm respectively needed delivery via caesarean section (p=0.602). 5 minute APGAR scores were 9.7 in the 40mg arm and 9.8 in the 60mg arm. Estimated blood loss was 300mls in the 60mg arm and 350mls in the 40mg arm (p=0.152). Head to head, 60mg of parenteral HBB is not superior to 40mg on their effects on duration of labor and fetomaternal outcomes.

We found that APGAR score at 1st minute in group I was 8.0 and in group II was 8.2, APGAR score at 5th minute in group I was 8.2 and in group II was 8.4. Estimated blood loss in group I was 324 ml and in group II was 356 ml, injection to delivery time in group I was 324 minutes and in group II was 3124 minutes, rupture of membranes to delivery was 106 minutes in group I and 124 minutes in group II. The difference was non- significant (P> 0.05).

Studies by Samuels et al. and Mukaindo et al., also recorded similar findings in the mater no-fetal outcomes.[11,12]

Aggarwal et al [3] conducted a prospective randomized control study on 104 primigravidae with single live fetus in cephalic presentation, with spontaneous onset of labor, between 37-40 weeks of gestation to observe the effects of 40 mg intravenous HBB as a labor analgesic and labor accelerant.Women were consecutively randomized into study (group I) and control (group II) groups, each with 52 patients after excluding high risk factors like preeclampsia, antepartum hemorrhage, previous uterine scar, and any contraindications to vaginal delivery. Group I received 40 mg HBB as a slow intravenous injection in the active phase of labor while Group II received 2mL normal saline. Pain scores were assessed at baseline and two hours later. Secondary outcome measures compared were progress of labor based on injection delivery interval, mode of delivery and neonatal condition at birth.

Statistical Analysis: Statistical significance was assessed by using Student's t-test and Chi-square test. P-value <0.05 was taken as significant. Results showed Pain relief of 35.6% was noted on visual analog score with the use of HBB. Mean duration of labor was 3 hours 46 minutes in Group I compared to 8 hours 16 minutes in Group II (P value: <0.001). Mode of delivery and neonatal outcome were comparable. No adverse maternal effects were noted.

Since the sample size is small and period of study short, many outcomes like fetal heart rate abnormalities, long term neuro-developmental outcomes, maternal side effects may not have surfaced, which may be better evaluated in larger well designed double blind control studies.

CONCLUSION

HBB is effective in significantly reducing the duration of the first stage of labor at both concentrations without any major adverse effects.

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