

THE EFFECT OF HYOSCINE-N-BUTYLBROMIDE  
(BUSCOPAN) ON THE CERVIX DURING THE FIRST  
STAGE OF LABOR (A RANDOMIZED TRIAL)

HASSAN S.O. ABDUL-JABBAR,\* (M.D., FRCSC)

Diplomat, American Board of Ob/Gyne Consultant & Associate Professor

and SHARIFA AL-SIBIANI (M.D.)

\*\*Department of Obstetrics & Gynecology King Abdulaziz University Hospital

Jeddah, Saudi Arabia

# THE EFFECT OF HYOSCINE-N-BUTYLBROMIDE (BUSCOPAN) ON THE CERVIX DURING THE FIRST STAGE OF LABOR (A RANDOMIZED TRIAL)

Hassan S.O. Abduljabbar,\* (MD, FRCSC)  
and Sharifa Al Sibiani,\*\* (MD)

\* Diplomat, American Board of Ob/Gyne  
Consultant & Associate Professor

\*\* Department of Obstetrics & Gynecology King Abdulaziz University  
Hospital Jeddah, Saudi Arabia

---

## ABSTRACT

**Objective :** To investigate the effect of Buscopan on the cervix during the first stage of labor.

**Subject and Method :** Prospective, randomized, controlled study, performed at King Abdulaziz University Hospital, Jeddah, Kingdom of Saudi Arabia. 90 patients included, 60 study cases and 30 control. The case study received 20 mg of Buscopan while control received 2 mls of saline. Data about each patients and progress of labor were collected and analyzed using either t-test or X<sup>2</sup> test.

**Results :** None of the variables we study were statistically significant except the duration of the first stage of labor and the duration from administration of medication to full dilatation of the cervix, with P value of 0.004 and 0.002.

**Conclusions :** Buscopan has an effect on the cervix and could help in accelerating first stage of labor.

### Introduction

Buscopan is the trade name of Hyoscine-N-Butylbromide, has a special site of action at the parasympathetic ganglia in the wall of the

viscera. Because of this, it exerts a specific antispasmodic action on the smooth muscle of the gastrointestinal, biliary and urinary tract, this action being produced long before the side effects characteristic of atro-

pine-like substances occur. Hence, no side effects on the central nervous system of salivary glands are observed when buscopan is administered in therapeutic doses. It is indicated in treatment of gastrointestinal spasm and hypermotility, pylorospasm in infants, postoperative vomiting, spastic constipation, biliary dyskinesia and spasm of urinary tract. It can also be used in patients with dysmenorrhoea and in patients with a delayed in relaxation of the lower uterine segment (1-3).

Although Buscopan have been used extensively during labor, there are no support from the literature to indicate the benefit of such a drug. Our aim is to investigate the effect of Buscopan on the cervix during labor.

### **Subjects and Methods**

This is a prospective, randomized, controlled study, performed at King Abdulaziz University Hospital, Jeddah. 90 patients were included in the study, they were divided into two groups, group 1 the study cases and group 2 is the control randomization were done as follows. Out of each three patients, two were considered to be study cases (N=60) and the third to be a control (N=30). The following data, age, gravidity, gestation age, end the onset of labor whether spontaneous or induced were recorded. Then the findings of the pelvic examination, position of the cervix, dilatation, effacement,

station, presence or absence of the membrane, fetal heart rate as well as maternal heart rate and blood pressure were also recorded. The study case received 20 mg of Buscopan and the control 2 mls of normal saline intravenously. The time from introduction of the Buscopan or the saline till full dilatation of cervix were calculated. Duration of each stage of labor in minutes and fetal weight in gram and Apgar Score were also recorded.

Data were entered into a PC for statistical analysis, a software SPSS were used to calculate P value using X<sup>2</sup> and t-test (4).

### **Results**

The majority of patients in either group were between 20 and 34 years of age. Table 1 shows me age in years of each group of patients. 12 patients in the study group and 7 patients in the control were primigravida. Table 2 shows the gravidity of each group of patients. When comparing the mean of age, gravidity and gestational age using t-test, it was found that there is no statistically significant difference between the two groups. (Table 3).

The onset of labor, whether spontaneous or induced the condition of the cervix (position of the cervix, anterior, central or posterior, dilatation in cm, and effacement in %) the

### *The Effect of Hyoscine-N-Butylbromide*

station of the presenting part as well as the status of the membrane when the study was done (intact or rupture) and the uterine contraction whether mild, moderate or strong were compared in the two groups and none of these factors found to be statistically significant. (Table 4).

Fetal heart rate, maternal heart rate, and systolic and diastolic blood pressure in each group is shown in Table 5.

Using t-test the P value were calculated, using the mean and standard deviation of duration from the

injection of either the Buscopan or the Saline to full dilatation of the cervix, first, second and third stages of labor in minute as well as fetal weight in grams and Apgar score at 1, and 5 minutes. (Table 6).

All variables studied were found to be statistically not significant except duration from injection to full dilatation and the duration of the first stage of labor. This might mean that Buscopan has an effect on the smooth muscle of the cervix and make the dilatation of the cervix faster.

TABLE 1.

THE AGE IN YEARS OF EACH GROUP

AGE	STUDY CASES (N=60)	CONTROL (N=30)
<20	11	2
20-24	15	9
25-29	22	9
30-34	8	9
>35	4	1

TABLE 2

THE GRAVIDITY OF EACH GROUP OF PATIENTS

GRAVIDITY	STUDY CASES (N=60)	CONTROL (N=30)
Primigravida (G1)	12	7
Multigravida (G 2-5)	29	14
Grand-Multi (>5)	19	0

TABLE 3

THE MEAN, STANDARD DEVIATION OF AGE,  
GRAVIDITY, and GESTATIONAL AGE.

<u>VARIABLE</u>	<u>MEAN</u>	<u>ST. DEVIATION</u>	<u>P</u>
<u>AGE</u>			
CASE	26.5	5.8	0.245
CONTROL	27.9	5.0	
<u>GRAVIDITY</u>			
CASE	3.8	2.9	0.644
CONTROL	3.5	2.3	
<u>GESTATIONAL AGE</u>			
CASE	39.1	1.7	0.455
CONTROL	39.4	1.3	

*The Effect of Hyoscine-N-Butylbromide*

**TABLE 4.**

**Comparison of Different Variable in study cases and control**

VARIABLE	STUDY CASE	CONTROL	TEST	P
<u>Onset of Labor</u>				
Spontaneous	45	25	x2	0.53
Induced	15	5		
<u>Position of Cervix</u>				
Anterior	10	5	x2	0.80
Central	28	16		
Posterior	22	9		
<u>Dilatation in CM</u>				
Mean	3.7	4	T	0.19
Standard deviation	4.0	1.2		
<u>Effacement in %</u>				
Mean	57.6	61.2	T	0.40
Standard Deviation	19.3	18.8		
<u>Station of Head</u>				
Mean	-2.0	-2.1	T	0.30
Standard Deviation	-0.8	-0.8		
<u>Status of Membrane</u>				
Present	26	34	X2	0.33
Absent	17	13		
<u>Contraction</u>				
Mild	28	7	X2	0.10
Moderate	28	21		
Strong	2	2		



Table 5

Comparison of maternal and Fetal Heart rate and systolic and diastolic  
blood pressure in study cases and control.

VARIABLE	MEAN	ST. DEVIAT	P
Fetal Heart Rate			
Case	139.3	9.8	0.53
Control	141.1	11.2	
M. Heart Rate			
Study case	88.3	10.6	0.16
Control	85.2	7.5	
Systolic B/P			
Study Case	116.9	12.2	0.65
Control	115.7	12.5	
Diastolic B/P			
Study Case	76.1	8.8	0.80
Control	76.6	6.9	

*The Effect of Hyoscine-N-Butylbromide*

**Table 6.**

**Comparison of Different variable using t-test**

VARIABLE	MEAN	ST. DEVIATION	P
To full dilation			*
Case	149.7	104.6	0.002
Control	230.4	131.0	
First Stage			*
Case	370.6	200.9	0.004
Control	496.5	171.9	
Second stage			
Case	16.7	18.8	0.66
Control	14.9	17.6	
Third Stage			
Case	4.6	3.5	0.42
Control	4.1	1.5	
Fetal Weight			
Case	3435.4	347.6	0.52
Control	3379.7	459.3	
Apgar Score (1)			
Case	8.5	0.63	0.94
Control	8.5	1.16	
Apgar Score (5)			
Case	9.8	0.63	0.46
Control	9.7	0.53	

\* Statistically significant

## DISCUSSION

Buscopan (Hyoscine-N-Butylbromide) is a potent smooth muscle relaxant. It is effective orally, intra-muscularly and intravenously (1-3).

Buscopan are suitable for treatment of the irritable bowel syndromes (5) and it has been used in patients during ERCP to inhibit sphincter of Oddi (6) and it has been by radiologists and endoscopists to relax the cardiac in achalasia, the pyloric antral region and the colon. It may sometimes useful for treatment of dysmenorrhea and renal colic (1-3).

During labor medication such as oxytocin and prostaglandin are used extensively to accelerate labor, personally, I have seen Buscopan been used in labor room, on the base that it has an effect on the smooth muscle with no support from the medical literature. Our study showed that it has an effect the progress of labor and it can be used to accelerate the first stage of labor.

## REFERENCES

1. Reynold J.E., Martindale, The Extra Pharmacopoeia, The Pharma-

ceutical Society of Great Britain, London, The Pharmaceutical press. 1982. 240-243.

2. Lawrence D.R., Bennett P.N.; Clinical Pharmacology. Fifth Edition : Churchill Livingstone. Edinburgh, London, and New York. 1980. 576.

3. Avery G.S. Drug Treatment : Principle and practice of clinical pharmacology and therapeutics. Second edition : ADIS Press Sydney and New York. 1980. 695-721, 1216.

4. Norusis M.J. : SPSS/PC+ version 3.0 and 3.1 update manual. Chicago : SPSS Inc., 1989.

5. Schafer E., Ewe K. The treatment of irritable colon. Efficacy and tolerance of Buscopan plus, buscopan, paracetamol and placebo in the ambulatory patients with irritable colon. Fortschr - med. : 1990 Aug. 30: 108 (25); 488-92.

6. Allesscher HD; Neuhaus H; Hagenmuller F; Classen M.: effect of N-Butylscopolamine on sphincter of Oddi motility in patients during routine ERCP a manometric study. Endoscopy. 1990 Jul.; 22 (4) : 160-3.