

# HYOSCINE-N-BUTYLBROMIDE (BUSCOPAN) IN ACCELERATION OF LABOUR

by

HECTOR MARIO BARACHO,\* M.D., D.G.O.

JAYANT R. KAMAT,\*\* M.D., D.G.O.

KRISHNANATH KUNKALEKAR,\*\*\* M.D., D.G.O.

and

MRS. LILY JACOB,\*\*\*\* M.D.

For obstetricians who are present at delivery, nothing is more disturbing than prolonged labour, even though abnormal troublesome events may not accompany it. Expectant mother also suffers from increased fatigue of labour, anxiety and worry. To stimulate uterine contractions, pituitary hormone, sparteine sulphate, oxytocin, prostaglandins and other drugs are being used. In view of the paucity of reports it was decided to study the effects of this drug regarding its efficiency, safety and general usefulness. This study was conducted at Ribandar Hospital, Goa Medical College from January 1980 to April 1980.

The important characteristic of Buscopan, is the specific spasmolytic action on the abdominal and pelvic organs and absence of undesirable side effects on the salivary and sweat glands, optical organ, the heart and the central nervous system, even after administration of large doses for long periods. Buscopan acts by inhibiting the cholinergic transmission in the synapses of the intramural parasympathetic ganglia. It thus has a selective

action on the cervico-uterine plexus and is actually able to bring about the dilatation of the cervix. An important advantage is that contractions are in no way affected, but due to better co-ordination of the contractions, pace of cervical dilatation is increased.

## Material and Methods

Fifty primigravidae having no medical or obstetric complications, and expected to progress normally in labour, were taken up for study when in established labour. Similarly, 50 multigravidae were also selected. 25 women in each group at random were selected as control. Buscopan 20 mg. was given intramuscularly to remaining 25 in each group. Inj. Buscopan was given to the patients when they fulfilled the following criteria.

1. Cervical dilatation was 3-4 cms.
2. Cervical effacement was 50% or more.
3. Membranes were intact.

A labour record was kept wherein the patient was examined two hourly or when need be after due aseptic precautions. Friedman's partogram was used to chart the cervical dilatation against the time in hours. In the controls similar methodology was followed but they were given 2

\*Sr. Resident, G.M.C.

\*\*Sr. Resident, G.M.C.

\*\*\*Sr. Gynaecologist, Asilo Hospital.

\*\*\*\*Professor, G.M.C.

Accepted for publication on 19-5-82.

ml. of distilled water.

In both these groups no sedatives, uterine stimulants or analgesics were given. In no case artificial rupture of membranes was done.

The injection to full dilatation and injection to delivery intervals were noted. The duration of the third stage was also noted. So also a close watch was kept on possible complications. The mean rate of dilatation of the cervix per hour was calculated.

#### Observation and Results

1. Age: Patients were in the age group of 18-35 years. Agewise distribution of cases is shown in Table I.

TABLE I  
Age-wise Distribution of Cases

Age	Control Group		Buscopan Group	
	Primi	Multi	Primi	Multi
16-20 yrs.	5	3	2	0
21-25 yrs.	15	6	15	9
26-30 yrs.	5	12	6	10
31-35 yrs.	1	4	2	6

2. Graviditywise distribution of cases is shown in Table II.

TABLE II  
Gravidity-wise Distribution of Cases

Gravida	Control Group		Buscopan Group	
	Primi	Multi	Primi	Multi
I	25	—	25	—
II	—	8	—	6
III	—	8	—	9
IV	—	5	—	4
V	—	3	—	4
VI	—	1	—	2
Total	25	25	25	25

3. Period of gestation: All cases selected were between 37-40 weeks.

4. Outcome of Labour: Outcome of labour is shown in Table III. In the Bus-

TABLE III  
Outcome of Labour

Mode of Delivery	Control Group		Buscopan Group	
	Primi	Multi	Primi	Multi
Spontaneous Vaginal Delivery	20	24	22	24
Outlet Forceps	2	—	2	—
Vacuum Extraction	1	1	—	1
L.S.C.S.	2	—	1	—

copan group there was one Caesarean section whereas in the control group there were two Caesarean sections. The indication for Caesarean section in the Buscopan group was deep transverse arrest whereas in the control group Caesarean sections were done for foetal distress in the 1st stage of labour and failed trial of forceps.

#### Discussion

Injection Buscopan when given in first stage of labour, was found to be very effective in acceleration of cervical dilatation. Paucity of reports in the English literature made us refer translations of German, Swedish and Japanese workers. Obama, Nanashima and Usui used Buscopan in 44 patients either intramuscularly or intravenously. Richter administered Buscopan when the dilatation was larger than the rupee coin. G. Bracco and V. Massa administered Buscopan in 200 patients. They used Buscopan and Buscopan compositum in their patients. Corsen observed that the most prompt antispasmodic effect was obtained with intravenous administration and also with administration of suppositories, whereas after oral administration the effect was

about half hour later. The parenteral administration had the advantage in that ecbohc could be administered at the same time. However in our series ecbohc were not used. He further observed that the optimal time for the administration of Buscopan was found to be when the diameter of the os was between 2.5 and 3 cms. and regular strong uterine contractions were present. Corssen observed that even with doses of upto 0.03 gm. there were no significant changes in blood pressure or pulse rate, no visual disturbances or complaints of dryness of the mouth. According to Obama *et al*, Buscopan has no unfavourable effect on uterine contractions. They also observe no untoward side reactions. In our series also no untoward side effects were observed except for one case who complained of headache which could be coincidental.

High percentage of success, relatively short time for dilatation by this method and obviously less time needed for labour room follow up of the patient is a factor in favour of this method. Richter opined that Buscopan is to be preferred to Pethidine since it has selective spasm relaxing action on the cervix and does not produce undesirable side effects. He observed that in uterine inertia it did not strengthen the contractions but by making the os more easily dilatable, weak contractions are made more effective than when the os is firm and resistant. Mean labour data is shown in Table IV.

In the present series of Buscopan Group the shortest injection to full dilatation interval was 1 hour 30 minutes in primigravidae whereas the longest was 11 hours. In multigravidae the shortest was 15 minutes and longest was 9 hours. Foetal distress was not observed in any of the patients who received Buscopan.

TABLE IV  
Mean Labour Data

	No. of Cases	Latent Phase		Active Phase		Mean dilatation of cervix in cms/per hr.	First Stage		Second Stage		Third Stage Mts.	Total Duration of Labour	
		Hrs.	Mts.	Hrs.	Mts.		Hrs.	Mts.	Hrs.	Mts.		Hrs.	Mts.
Primigravidae													
Control	25	5	09	4	50	1.35	9	59	1	02	8	11	09
With Buscopan	25	4	57	3	30	1.86	8	27	0	34	7	9	08
Multigravidae													
Control	25	5	16	3	11	2.04	8	27	0	18	7	8	52
With Buscopan	25	4	36	2	24	2.7	7	00	0	13	6½	7	21

This is one good point of Buscopan over Pethidine which may cause respiratory depression in the newborn.

In the present study in primigravidae with Buscopan, the latent phase was 4 hours 57 minutes and the active phase 3 hours 30 minutes. Thus the total duration of 1st stage was 8 hours 27 minutes. Mean dilatation of cervix was 1.86 cms per hour. Whereas in the control group of primigravidae total duration of 1st stage was 9 hours 59 minutes, with 5 hours 9 minutes as latent phase and 4 hours 50 minutes as active phase, thus mean dilatation of cervix was 1.35 cms per hour. Total duration of labour in the control group was 11 hours and 9 minutes, and in the Buscopan group 9 hours and 8 minutes. Thus it clearly shows that total duration of labour in Buscopan group was shortened by two hours and 1 minute. This definitely helps in the primigravidae in acceleration of labour.

In the multigravidae in the Buscopan group, duration of latent phase was 4 hours 36 minutes, active phase being 2 hours 24 minutes. Thus the total duration of 1st stage was 7 hours. The mean dilatation of cervix was 2.7 cms per hour. In the control group the duration of latent phase was 5 hours 16 minutes and the active phase was 3 hours 11 minutes. Thus the total duration of 1st stage was 8 hours 27 minutes. The mean dilatation of cervix was 2.04 cms per hour. Thus the active phase was shortened in the Buscopan group by 47 minutes. There was no much difference in the second and third stages of labour between the two groups. Total duration of labour in the control group was 8 hours 52 minutes, whereas in the Buscopan group it was 7 hours 21 minutes, thus duration of labour was shortened by 1 hour 31 minutes in Buscopan group.

### Conclusion

The following conclusions are drawn from this study:

1. Buscopan is an antispasmodic which was used with very satisfactory result to shorten the first and second stages of labour.
2. In primigravidae the first stage was shortened by 1 hour 32 minutes.
3. In multigravidae the first stage was shortened by 1 hour 27 minutes.
4. Total duration of labour in primigravidae was cut short by 2 hours and 1 minute.
5. In the multigravidae total duration of labour was cut short by 1 hour 37 minutes.
6. No untoward side effects either on the mother or the foetus were observed.
7. On the basis of these results Buscopan proves to be a useful drug for patients in shortening the duration of labour and for the Obstetrician a time saving method.

### Acknowledgement

We thank Dr. G.J.S. Abraham, Dean, Goa Medical College for allowing us to use the Hospital Data.

### References

1. Bracco, G., Massa, V.: Buscopan compositum in Obstetrics (Clinical experiences). *Minerva Ginecologica*. Vol. 12, 1960, S. 834-839.
2. Corssen, G.: Use and mode of action of the spasmolytic Buscopan in Obstetrics and Gynaecology. *Med. Klin.* 48, 1286-1288, 1953.
3. Friedman, E. A.: In labour, Clinical Evaluation and Management. Appleton-Century-Crofts/New York 2nd Ed.
4. Obama, M., Usui, R. and Mitani, Y.: Clinical use of Hyoscine-N-Butylbromide (Buscopan) in Obstetrics and Gynaecology. Vol. 1, No. 3, 151-160, March 1957.
5. Richter: Experiences with the antispasmodic Buscopan in Obstetrics. *Arztl. Wschr.* 8: 1203, 1953.