

## CALMPOSE IN LABOUR

by

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The importance of psychic stimuli upon pregnancy and parturition has been recognised during the last few years. The body responds to psychic stimuli through the hypothalamus to pituitary gland which in turn affects adrenals and the ovary, influencing ovarian function. There is also local effect on the uterus and the cervix through the autonomic nervous system. The popular adage "Tense mind and Tense cervix" is very much true as anxiety produces a natural protective tension in the mind and cervix. Excessive stimulation of the motor mechanism of sympathetic nervous system increases the tone of the circular muscle fibres of the cervix; thus there is incomplete relaxation of cervix which leads to prolonged labour. The psychoprophylactic approach to achieve muscle relaxation during antenatal period is quite impractical seeing the overcrowded state of our antenatal wards. Hence there has been continuous search for a drug which would facilitate labour by relieving the patient of anxiety and tension. In this effort first of all benzodiazepines came into light. Diazepam is one of the benzodiazepines and its structure is 7-chloro-1, 3-dihydro-1-methyl-5-phenyl, 2H-1-4-benzodiazepine-2-one.

It is chemically related to chlorodiazepoxide but it has a rapid tranquilizing and potent anticonvulsant action. It shares many pharmacological properties with chlorodiazepoxide but is more active in most laboratory tests and is chemically effective at a lower dose (Da Silva *et al*, 1964).

### *Material and Method*

The subjects studied were all patients at Government Hospital for Women, Amritsar. The report concerns 150 consecutive patients delivered between April, 1974 to December, 1974. The patients were divided into 2 groups.

(i) Group I included 75 patients who were given injection Calmpose.

(ii) Group II consisted of 75 patients who received placebo injection to keep a control.

The criteria employed for selection of patients for both groups were, (1) Full term pregnancy, (2) Vertex presentation, (3) No cephalopelvic dis-proportion, (4) No major antenatal complication.

Time of giving the injection in both the groups was 2-fingers cervical dilatation in multigravida and 3 fingers cervical dilatation in primigravida. Patient was observed for half an hour before giving injection to see the duration, interval and nature of the contractions.

All the patients were told before giving the injection that they would be given a drug which would allay their anxiety,

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make them sleep in between the pains and would shorten labour.

*Group I:* Each patient was given calm-  
pose (10mg) injection and watched for  
1 hour. Another injection was repeated  
if patient did not have desired effect.  
Pethidine injection 50mg was given to  
the patients 1½ hour after the first injec-  
tion if the patient did not respond to 20  
mg of Calmpose.

*Group II:* Each patient was given pla-  
cebo injection. All the patients of group  
I and II were observed at 15 minutes  
interval to see pulse, blood pressure,  
foetal heart rate, character, duration and  
interval of pains, emotional status of pa-  
tient.

Depending on the emotional status of  
the patients they were divided into 2  
classes:

(1) Very apprehensive, un-coopera-  
tive, and unmanageable patients.

(2) Moderately apprehensive but co-  
operative patients.

Effect on the emotional status was eva-  
luated according to the scoring method  
modified from one originally described by  
Marubini and Tretola (1963).

#### *Excellent*

1. Patient sleeps peacefully in be-  
tween the contractions.
2. Patient is quite co-operative during  
pains by bearing down or relaxing  
without reacting to pain.
3. Answers correctly to questions  
about place, time and circum-  
stances.
4. Declares in reply to suitable ques-  
tions that she feels fully relaxed  
and denies anxiety or fear in be-  
tween the pains.

#### *Good*

- (1), (2), (3) same as above.

4. She admits that she is a little  
afraid.

#### *Fair*

1. Patient is awake but relaxed in  
between the pains.
2. Shows minor reaction to labour  
pains.
3. Same as above.
4. Admits to be very anxious and  
afraid.

#### *Poor*

1. Patient is fully awake and restless.
2. Marked reaction to pains.
3. May be confused about time and  
place.

Injection/delivery interval noted in  
both the groups to see the effect of drug  
on duration of labour.

After delivery the baby was observed  
to see any respiratory depressant action  
of the drug and APGAR scoring was  
done.

#### *Results*

The blood pressure and pulse remained  
same in all the 149 patients, but in one  
patient fall in blood pressure from 180/  
120 to 140/100 with Calmpose injection  
was observed. She was a known case of  
pre-eclampsia.

Group I and Group II patients had  
similar nature of uterine contractions,  
their duration and interval before and  
after giving the injections.

In Group I the average injection/deli-  
very interval noted was 9 hours and 22  
minutes in primigravida and 4 hours and  
43 minutes in multigravida.

In Group II the average injection/deli-  
very interval noted was 9 hours and 59  
minutes in primigravida and 4 hours and  
61 minutes in multigravida.

It was seen that injection/delivery  
interval was less than 3 hours in 21.04%

of primigravidae and in 67.5% of multigravidae of group I.

In Group II, 15.3% of primigravidae and 14.3% of multigravidae had injection/delivery interval less than 3 hours as shown in Table I.

Apgar scoring of children born in groups I and II was between 6-10.

Nature duration and frequency of uterine contractions remained same before and after giving the injection in both the groups.

TABLE I  
*Injection—Delivery Interval in Primigravidae and Multigravidae*

Drug	Inj./Delivery interval	Primi gravidae		Multigravidae	
		No.	%age	No.	Multies %age
Calmpose	Less than 3 hours	8	21.04	25	67.5
Placebo	Less than 3 hours	5	15.3	6	14.3
Calmpose	3.01 to 6 hours	14	36.8	19	27
Placebo	3.01 to 6 hours	14	38.4	14	35.7
Calmpose	6.01 to 9 hours	4	10.5	0	0
Placebo	6.01 to 9 hours	5	15.4	6	14
Calmpose	9.01 to 12 hours	7	18.4	1	2.4
Placebo	9.01 to 12 hours	0	0	0	0
Calmpose	12.01 to 15 hours	1	2.6	0	0
Placebo	12.01 to 15 hours	3	7.1	3	7.1
Calmpose	More than 15 hours	4	10.5	1	2.7
Placebo	More than 15 hours	8	23.8	11	28.7

Three cases were dropped from group II as 1 patient needed Calmpose injection for sedation and 2 ended in caesarean section.

#### *Effect of the Drug on Emotional Status*

It was found to be quite marked. In group I 69% of patients achieved the score from excellent to fair and out of very apprehensive and unco-operative class of patients, 2 (7.4%) achieved the ideal score of excellent, 14 (51.8%) good and 1 (3.7%) fair and 10 (37.1%) poor. Out of moderately apprehensive but co-operative class, 12 (25%) achieved the score excellent, 21 (43.7%) good, 2 (4%) fair and 13 (27.3%) poor as shown in Table II. In group II 20% patients had a score of fair probably due to psychological reasons.

#### *Discussion*

Diazepam is a benzodiazepine derivative. Its muscle relaxant property is 5 times more than chlordiazepoxide.

According to Husslein it has a parasympathicotonic action, while it decreases sympathetic tonus. During labour there is increased stimulation of sympathetic system which leads to increased tone of smooth muscle of cervix and striated muscle of pelvic floor. Calmpose overcomes, the resistance offered by cervix and pelvic floor by eliminating excessive sympathetic impulses.

In the study of emotional status there was found a marked difference in Calmpose and Placebo series. It has no direct analgesic action but by interrupting the vicious circle of pain-anxiety it produces a detachment and depersonalization of

TABLE II  
Emotional Status

Types	EXCELLENT		GOOD		FAIR		POOR	
	Calmpose	Placebo	Calmpose	Placebo	Calmpose	Placebo	Calmpose	Placebo
1. Unco-operative apprehensive and unmanageable type	2 (7.4%)	—	14 (51.8%)	—	1 (3.7%)	5 (20%)	10 (37%)	20 (80%)
2. Apprehensive but co-operative type	12 (25%)	—	21 (43.7%)	—	2 (4%)	10 (20%)	13 (27.3%)	40 (80%)

the pain so that it is being perceived but less acutely felt. In our study we found a clear difference between group I and II. Sixty-nine per cent of patients in group I had the score of fair to excellent.

Similar results were reported by Bepko and Lowe (1955); Jungalwala and Jindal (1968) and Choksi *et al*, (1967), while different results were found by Elder *et al*, (1969) and Nisbet *et al*.

In our study the injection/delivery time in group I was shorter than that in group II.

In primigravidae average injection/delivery interval was shorter by 37 minutes and in multigravidae by 18 minutes. It is not at all a significant difference. Similar results were found by Bepko and Lowe (1965) and Jungalwala and Jandial (1968).

Similar results were also found by Elder and Crossley (1957), Nisbet *et al*, (1968) and Lee (1968). Different results were found by Choksi *et al*.

#### Summary and Conclusion

A controlled trial was conducted with Calmpose in 150 patients in labour, 75% patients received injection Calmpose (Group I) and 75 patients placebo (Group II). The dose employed was 10 to 20 milligrams I/M with initial cervical dilatation of 2 to 3 fingers. The average injection/delivery interval in Group I was 37 minutes less than in group II in primigravida and 18 minutes less in multigravida.

There was distinctly better action on the emotional status in group I.

It was not found to have any detrimental effect on maternal pulse, B.P. and foetal heart rate and respiration.

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