

INFLUENCE OF INTERMITTENT MANUAL BREAST STIMULATION ON PRELABOUR UTERINE CONTRACTILITY AND CERVICAL RIPENING IN TERM PREGNANCY

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SUMMARY

The effect of intermittent manual breast stimulation was studied on prelabour uterine contractility and cervical ripening in 100 term pregnant patients and compared with spontaneous change in the same parameters in 50 control cases.

In test group gentle breast stimulation was done intermittently in areolar region with lubricated fingers by the patient for a maximum of three hours per day for three days.

Uterine contractility was recorded by external cardiotocograph and computed in Alexandria Units. Modified Bishop score was used for assessing cervical ripening.

There was a significant change in Bishop score and increase in uterine contractility in the study group. 51% patients went into spontaneous labour by fourth day who did breast stimulation as compared to 28.2% in control group.

Breast stimulation was found to be a natural noninvasive method for cervical ripening and induction of labour. No uterine hypertonus was detected.

INTRODUCTION

Obstetricians have used the term "Ripening" to describe the changes in the cervix from being firm and undilated to

being soft, dilated, effaced and axial to the vagina. Bishop (1964) and Anderson and Turnbull (1969) reported that the beginning of cervical dilatation is a reliable sign that labour is approaching.

Prelabour refers to uterine activity that

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precedes labour and gives rise to the changes that are preparatory to labour. The two phenomenon of increased uterine contractility and local alteration of the cervix are inter-related and precede the onset of labour.

Caldeyro-Barcia et al (1971) reported uterine contractions following infant suckling of the nipple in the later stages of pregnancy and found them similar to those occurring from oxytocin administration. That breast stimulation increases uterine contractility has been demonstrated by various reports using breast stimulation for contraction Stress Testing (Lenke & Nakes 1984, Huddleston et al 1984). Elliott and Flaherty (1983) and Salmon et al (1986), have described the use of breast stimulation to ripen the cervix.

MATERIAL AND METHODS

In the present study 150 term pregnant patients (37 wks) admitted in antenatal wards of S.K. Hospital were studied. Out of which 100 were in test group and 50 were kept as control. The cases were admitted in the ward either for false labour, pregnancy induced hypertension, bad obstetric history or post dated gestation and induction of labour in these cases was being considered. Cases for operative delivery or with contraindication to induction were excluded.

Modified Bishop Score was assigned to all the patients by performing a pelvic examination on first day and repeated on fourth day of the study by the same obstetrician. Nonstress test was performed in all cases, only the reactive cases were included in the study.

Patients were asked to massage their breast in the left lateral position with a lubricated finger in the area of areola with firm but gentle pressure. At a time massage was done for a period of half to one hour depending on patients tolerance to a maximum of 3 hours per day for, 3 days.

Uterine contractility was recorded by external cardiotocograph. Recordings were obtained for baseline contractility and after one hour of breast stimulation on day one. A repeated recording of uterine contractility was made on fourth day or at onset of labour whichever occurred earlier. Interval between start of breast stimulation and onset of labour was recorded for each case.

RESULTS

Cervical Ripening : In patients who did breast stimulation increase in mean Bishop Score was much more as compared to that in control group (Table I). Mean Bishop Score increased from 3.6 to 5.7 in primigravida and from 4.5 to 6.8 in multigravida in the study group as compared to from 3.0 to 4.3 in primigravida and from 4.5 to 5.4 in multigravida in control group.

Uterine Contractility : In the present study Alexandria Units (Average amplitude of contraction in mm of Hg x Average duration in minutes x Average frequency per 10 minutes) as advocated by EL-Sahwi et al (1967), was used for computing contractility.

The study of spontaneous uterine contractility in 50 control cases at term showed that in its natural course there was an increase in the mean spontaneous

Table I

Mean initial bishop score in relation to mean bishop score after three days of breast stimulation in 150 patients.

	Test a Mean \pm SD	Control b Mean \pm SD	Test c Mean \pm SD	Control d Mean \pm SD
Primi (n=53)	3.6 \pm 1.7 (35)*	3.0 \pm 1.6 (18)	5.7 \pm 2.7	4.3 \pm 1.8
Multi (n=97)	4.5 \pm 1.6 (65)	4.5 \pm 1.8 (32)	6.8 \pm 1.9	5.4 \pm 1.8

* Number of patients in parenthesis

uterine contractility from 3.80 AU at zero hour to 5.61 AU after four days in primigravida and from 4.78 AU to 10.20 AU in multigravida. However in patients who did breast stimulation for three days there was a marked increase in mean uterine contractility from 4.42 AU to 37.02 AU in primigravida and

from 4.02 AU to 38.78 AU in multigravida as shown in Table II.

On an average 51% patients who did breast stimulation went into spontaneous labour within four days as compared to 28.26% in whom no intervention was done.

In patients who did not go into spontaneous labour by fourth day and were

Table II

Serial mean uterine contractility in Alexandria Units in 100 test and 50 control cases

	No. of patients	0 hour Mean \pm SD a	One hour Mean \pm SD b	Fourth day Mean \pm SD c
Primi				
Test	35	4.42 \pm 9.1	21.57 \pm 19.3	37.02 \pm 29.3
Control	18	3.80 \pm 7.8	4.05 \pm 8.1	5.61 \pm 10
Multi				
Test	65	4.02 \pm 7.6	20.90 \pm 20.4	38.78 \pm 34.6
Control	32	4.78 \pm 8.2	6.12 \pm 10.4	10.20 \pm 14.5

Table III

Mean infusion delivery interval (in hours) in relation to initial bishop score

Initial Bishop Score	Primigravidas				Multigravidas			
	Test		Control		Test		Control	
	No.	Mean IDI*	No.	Mean IDI	No.	Mean IDI	No.	Mean IDI
	a		b		x		y	
0 - 3	5	14 ± 2.33	8	20 ± 3.4	5	12 ± 2.3	6	16. ± 4.2
4 - 6	3	11.8 ± 2	4	17.67 ± 4.5	4	10 ± 3.6	6	12.2 ± 2.2
6	1	9 ± 0	1	10 ± 0	0	-	-	-

* Mean IDI : Mean infusion delivery interval in hours

subsequently given oxytocin infusion showed beneficial effects on cervical ripening.

Mean infusion delivery interval as shown in Table III was much less as compared to cases who did not do breast stimulation.

DISCUSSION

The successful induction of labour depends to a large extent on the ripeness of cervix (Freeman et al, 1982).

Various methods for cervical ripening have been used (humoral and mechanical) but all are invasive with their respective complications and side effects. Of the various methods used to ripen the unfavourable cervix breast stimulation is a procedure natural to the body's physiology.

The findings of the present study show that breast stimulation improves cervical score. The percentage of patients going into spontaneous labour in present study i.e. 51% is comparable to other studies.

(45% Elliott and Flaherty 1983, 69% Jhirad and Vago 1984, 36% Salmon et al 1986).

Only unilateral stimulation was performed because of the increased incidences of hyperstimulation reported by various authors when bilateral massage was performed (Lenke & Nemes 1984) No maternal or foetal complications were observed following the procedure.

Actual mechanism by which cervical ripening occurs through breast stimulation is not known. It is yet to be determined whether oxytocin release, prostaglandins or other factors like prolactin levels are involved in hastening the ripening.

CONCLUSION

Breast stimulation is an effective, natural, noninvasive method for cervical ripening. It can be used safely for induction of labour. Even if patients do not go into spontaneous labour the response to subsequent oxytocin infusion is better following breast stimulation.

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