Effect of Antenatal Expression of Breast Milk at Term in Reducing Breast Feeding Failures

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Abstract

Background: Though breast feeding is natural, during the first 2-3 days, when enough breast milk is not available with mother, she may introduce bottle feeding erroneously for improving nutrition to her baby. We studied the effect of antenatal expression of breast milk at term in reducing breast feeding failure as compared to conventional method of initiation of breast feeding.

Methods: A prospective study was carried out in 180 booked cases at term. Daily expression of breast milk at least once a day after 37 weeks of pregnancy was introduced in randomly selected 90 pregnant ladies. Prior examination was done to exclude any inverted or cracked nipples and appropriate treatment instituted.

Result: The study group who expressed breast milk daily after 37 weeks did not find it difficult to initiate breast feeding after vaginal or cesarean delivery. Sufficient milk started flowing within half an hour of initiation of breast feeding in most 85 (94.4%) subjects of study group as compared to 63 (70%) patients of control group, which was statistically significant. There was no increase in any delivery complication. There were two partial breast feeding failures in control group but none in study group.

Conclusion: Daily antenatal breast milk expression after 37 completed weeks of pregnancy significantly reduced the time for establishing full breast feeding and reduced breast feeding failures.

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Key Words: Antenatal milk expression; Breast feeding failure

Introduction

Human milk is the preferred feeding for all infants, including premature and sick newborns, with rare exceptions. Benefits of breast feeding extend to mothers by improving post partum recovery, partial birth control and reduced risk of ovarian and breast cancers [1]. For successful implementation, breast feeding should be encouraged and supported prenatally, perinatally and postnatally. Early breast feeding in all babies, irrespective of the mode of delivery and avoidance of prelacteal and prolacteal feeds are essential to establish successful breast feeding. The motivation and preparation of breast should start during antenatal period. Willingness, keenness, knowledge and confidence in mother are crucial for successful establishment of breast feeding.

Obstacles to the establishment of breast feeding are inadequate prenatal education and promotion, physician under-education and lack of support, cultural views, promotion of commercial formula, hospital practices and lack of post discharge follow up. Additional barriers include parental educational levels and knowledge about breast-feeding [2], partner's attitude [3] and maternal employment. Identifying obstacles to breast feeding has resulted in multitargeted approach to the promotion of

breast feeding e.g. Baby Friendly Hospital Initiative [4].

During the first few days, when lactation is not fully established, the mother is often anxious that her baby is not getting adequate nourishment. Introduction of bottle feeding [5], would lead to nipple confusion and the baby will refuse breast feeding because the mechanism of sucking at bottle teat and breast are totally different. The administration of prelacteal feeds interferes with sucking and prolactin production and ultimately undermines the confidence in mother's ability to breastfeed. In order to obviate this initial period of 2-3 days when mother thinks that supplementary feed may be required by the newborn, we started advising gentle emptying of breasts daily once at least (any time of the day) preferably during bathing time after 37 completed weeks of gestation. We found that this practice led to increased flow of milk at delivery, leading to exclusive breast feeding without any increase in complications.

Material and Methods

A total of 180 pregnant women at 37 weeks were randomly divided in two groups. The test group was advised to gently empty their breast daily once at least (any time of the day) preferably during bathing time. At the time of delivery, all the mothers were advised to breastfeed within half an hour of

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delivery and within six hours after cesarean section. The time was noted from initiation to full lactation when no top feed was required. Baby was taken as satisfied if after breast feeding baby did not cry for minimum two hours and passed urine six or more times in a day. This time interval was compared between the two groups. Prior breast examination was done at 37 completed weeks in both the groups to rule out cracked or retracted nipples.

Results

Out of 90 patients (study group), 85(94.44%) had established full lactation within half an hour of initiation of breast feeding whereas in control group only 63 (70%) had established full lactation within same period.

Out of control group, two patient (2.22%) had partial lactation failure i.e. even 7 days after delivery top feed was required by the baby in addition to breast feed. Full lactation was established between half an hour to 72 hours after initiation of lactation in 25 (27.78%) patients of control group against 5 (5.56%) patients in the study group.

There were more primipara in test group (52.2% vs. 47.8%), but there was no significant statistical difference in ratio of primipara and multiparas in both groups ($p=0.655$) as shown in Table 1. The time interval from initiation of lactation to full lactation in study group and control group were analyzed statistically with chi square test and the difference was found to be significant at the value of $p \leq 0.001$ (Table 2).

Table 3 shows time interval from initiation of lactation to full lactation in study group in vaginal and cesarean deliveries. The results for above were analyzed and significant difference was found between two subgroups at the value of $p \leq 0.001$. Table 4 shows time interval from initiation of lactation to full lactation in control group in vaginal and cesarean deliveries. The results for above were analyzed statistically with chi square test and significant difference was found between two sub groups at the value of $p \leq 0.01$.

Table 1

Distribution of primipara and multipara between test and control groups

	Study	Control group	Chi square test	p value
Primipara	47 (52.2%)	44 (48.9%)	0.200	0.655
Multipara	43 (47.8%)	46 (51.1%)		
Total	90	90		

Table 2

Time interval from initiation of lactation to full lactation in test group and control group

Time interval from initiation to full lactation	Study group n=90	Control group n=90	Chi square value	p value
<1/2 hours	85 (94.44%)	63 (70%)	18.6036	$\leq 0.001^{**}$
1/2 to 72 hours	5 (5.56%)	25 (27.78%)		
>72 hours	0 (0%)	2 (2.22%)		

** significant

Table 5 shows time interval from initiation of lactation to full lactation in test group and control group in vaginal deliveries. The results for above were analyzed statistically with chi square test and significant difference was found between two sub groups at the value of $p \leq 0.001$.

Table 6 shows time interval from initiation of lactation to full lactation in test group and control group in LSCS deliveries. The results for above were analyzed statistically with chi square test and significant difference was found between two sub groups at the value of $p \leq 0.05$.

Discussion

Mother's milk is the universally acknowledged ideal and complete food for her baby. Expression of milk antenatally manually prepares the mother psychologically and the breasts and nipples mechanically, for breast feeding. It accustoms the gland cells to milk production, opens milk ducts and facilitates the onset of lactation.

It has been postulated that antenatal nipple stimulation may initiate premature uterine contractions leading to premature labor. The uterus contains fewer oxytocin receptor sites in early antenatal period therefore oxytocin will not cause effective contractions during that time. For most of pregnancy, progesterone is the dominant hormone. Toward the end of pregnancy, estrogen blood levels become higher than progesterone levels in preparation for labor. Progesterone relaxes smooth muscle cells. High progesterone levels of pregnancy are highly effective at keeping the smooth muscles of the uterus quiet until it is time for labor to begin. The kind of nipple stimulation that has been shown to induce labor

Table 3

Time interval from initiation of lactation to full lactation in test group in vaginal and LSCS deliveries

Time interval from initiation to full lactation	Study group vaginal delivery n=72	Study group LSCS n=18	Chi square value	p value
<1/2 hour	72 (100%)	14 (77.78%)	16.7441	$\leq 0.001^{**}$
1/2 to 72 hours	0	4 (22.22%)		
>72 hours	0	0		

** significant

Table 4

Time interval from initiation of lactation to full lactation in control group in vaginal and LSCS deliveries

Time interval from initiation to full lactation	Control group vaginal delivery n=71	Control group LSCS n=19	Chi square value	p value
<1/2 hour	56 (78.87%)	8 (42.15%)	12.1923	$\leq 0.01^{**}$
1/2 to 72 hours	13 (18.31%)	11 (57.89%)		
>72 hours	2 (2.82%)	0		

** significant

Table 5

Time interval from initiation of lactation to full lactation in test group and control group in vaginal deliveries

Time interval from initiation to full lactation	Study group vaginal delivery n=72	Control group vaginal delivery n=71	Chi square value	p value
<1/2 hour	72 (100%)	56 (78.87%)	16.9938	≤ 0.001**
½ to 72 hours	0	13 (18.31%)		
>72 hours	0	2 (2.82%)		

**significant

Table 6

Time interval from initiation of lactation to full lactation in test group and control group in LSCS deliveries

Time interval from initiation to full lactation	Study group LSCS n=18	Control group LSCS n=19	Chi square value	p value
<1/2 hour	14 (77.78%)	8 (42.15%)	4.8795	≤ 0.05**
1/2 to 72 hours	4 (22.22%)	11 (57.89%)		
>72 hours	0	0		

**significant

at term involves using a hospital-grade breast pump for long periods of time [6]. As this study involved subjects after 37 completed weeks, there was no risk for preterm labour.

It is feared that loss of colostrum may lead to newborn being increasingly prone for infections but these fears are unfounded in light of many studies available. The anthropological studies have cited “overlap” of breast feeding and pregnancy in 12-50% of pregnancies in countries such as Bangladesh (12%), Senegal (30%), Java (40%) and Guatemala (50%). Among rural Guatemalan women participating in a nutrition-supplementation trial, lactation overlapped with pregnancy in 253 of 504 (50.2%) of the pregnancies. For cases where overlap occurred, 41.4% continued to breast-feed into the second trimester and 3.2%, in the third trimester. The energetic stresses of overlap did not significantly affect fetal growth [7]. With increasing first-hand experience among health professionals; many well-respected sources are asserting that even breast feeding is safe in healthy pregnancies [6]. If a pregnancy is not high risk and there is no uterine bleeding, no history of premature delivery, and good weight gain, the pregnant mother can breastfeed without jeopardizing the pregnancy or her health [8]. In this study, no effect was detected on the babies born to woman in test group. In a follow up of two years after the study, no increase in either infection rates or compromise in fetal growth as compared with control group has been found.

In our study, it has been found that antenatal milk

expression at term pregnancy leads to significant reduction in time period ($p < 0.001$) for establishment of full lactation in most of the vaginal deliveries, thus reducing the chances of breast feeding failure. It also ensures that the antenatal preparation of the breast is optimal, protractile nipples are formed and the lacteal ducts are patent with no local pathology. Other studies also support the contention that overall 70-80% babies initiate full breast feeding immediately after birth and it is delayed in cesarean deliveries probably due to lesser number of oxytocin pulses and lower prolactin levels in cesarean deliveries [9-11]. Though this was a small study involving only 180 patients, the results have been found to be statistically significant.

Conflicts of Interest

None identified

Intellectual Contribution of Authors

Study Concept : Lt Col G Singh

Drafting & Manuscript Revision : Lt Col G Singh

Statistical Analysis : Lt Col G Singh

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