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Original Research Article

Comparative analysis of neonatal weight and length pattern in cross-cradle and other breastfeeding positions

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ABSTRACT

Background: Breastfeeding is an art and a skill which needs to be learnt and mastered. There is no one right position for breastfeeding. Any breastfeeding position that is comfortable for the mother and infant for effective breast milk transfer is an acceptable position. Cross cradle hold works well for Mothers who are breastfeeding for the first time, with latching difficulties, having flat and inverted nipples. Also, it helps in deep latching which helps to improve the level of attachment among new born. Objective of the study was to compare cross-cradle hold and other breastfeeding positions in terms of their effects on weight and length pattern in neonates among primiparous breastfeeding mothers after full-term vaginal delivery.
Methods: This prospective cohort study was conducted in the obstetrics and gynaecology department among 240 primipara mothers who delivered vaginally at the same tertiary care institute.
Results: Total 50.42% mothers preferred cross-cradle hold breastfeeding position. Neonates of mothers who had adopted cross-cradle hold, had better gain in weight and length after one month.
Conclusions: Significantly more gain in weight and length of neonates were observed in those mothers who have adopted cross-cradle breastfeeding position.

Keywords: Cross-cradle breastfeeding position, Vaginal delivery, Neonatal weight and length pattern, Prospective cohort study

INTRODUCTION

Breastfeeding is described as the mother and child's act of milk transference.[1] Breastfeeding is believed to be the first step that ensures that the child gets a healthy and consistent source of nutrition. It creates warmth, affection and a unique bond between mother and child.

There is no one right position for breastfeeding. Any breastfeeding position that is comfortable for the mother and infant for effective breast milk transfer is an acceptable position. When positioning is comfortable, and the infant is well aligned with the breast, a deep and effective latch is more likely.

Breastfeeding positions can vary and change depending on an infant's size, gestational age and abilities, maternal body shape, breast size and shape, recent procedures, and mother's preference.

Effective positioning and latching are essential for successful breastfeeding and can help the infant to suck effectively. It also stimulates, build, and maintain a mother's breast milk production, that helps to prevent many breastfeeding problems such as sore nipples, mastitis, low breast milk supply, and poor infant weight gain.[2]

Primiparous mothers may have some anxiety because they are not quite sure how to breastfeed. In such circumstance,

the success of breastfeeding depends upon the preparation of mother through effective antenatal education that helps them to know and learn breastfeeding positioning and techniques.[3,4]

Cross cradle hold for breast feeding is suitable for mothers and infants learning to breastfeed. It also provides good head and neck control. This makes it easier to bring the infant to the breast. It also increases mothers' satisfaction for breast feeding. High maternal confidence leads to belief in care-taking ability, an increased sense of control, and decreased stress, which could promote infant well-being.[5,6]

Thus, this study was conducted with the objective of evaluating neonatal outcomes such as gain in weight and length among cross-cradle breast feeding position and other breastfeeding positions.

METHODS

The study protocols were approved by institutional ethics committee for human research (IECHR), Medical College and SSG Hospital, Baroda, Gujarat, India.

This was a prospective cohort study where 240 mothers delivered vaginally at labor room of SSG Hospital Baroda from April 2022 to November 2022 who fulfil inclusion criteria like all booked and un-booked cases, full term pregnancy, primipara mothers were enrolled for the study after taking written informed consent. Those mothers who have undergone caesarean section, had preterm delivery, who are critically ill and not in a condition to feed her baby, in whom breast feeding is not recommended, whose babies are having congenital malformation or serious illness and not in a condition to tolerate breast feeds were excluded from the study. The objective of the study was to find out comparative gain of weight/length in neonates in mothers who have adopted cross cradle feeding position as compared to the mothers who have adopted other feeding positions.

The sociodemographic profile, obstetric history, and menstrual history was noted for all the mothers. At birth, weight of all the neonates was measured with standard digital weight machine and length for all the neonates was measured with infantometer in labour room at this institute. On the same day, all the mothers were observed for adopted breast feeding position and breastfeeding technique by investigator himself and were encouraged to continue same breastfeeding position even after discharge. They were asked to come for follow up after one month. At one month follow up, weight and length of all these babies were recorded.

All the collected data was entered into Microsoft excel sheet and the files were kept password protected and based on this data, two groups were made (i.e. the mothers who have adopted cross cradle feeding position as compared to the mothers who have adopted other feeding positions). Comparative statistical analysis was performed between these two groups using t test and p value of <0.005 was considered significant.

RESULTS

Table 1 shows out of 240, majority of the mothers belong to the age group of 22-25 years (44.16%) followed by 18-21 years (42.5%). With regard to the distribution the residence of the mothers depicts that, maximum number 62.91% belonged to urban locality and 37.03% belonged to rural locality. 31.25% mothers had taken primary education, whereas 59.58% mothers had secondary education.

Table 1: Frequency and percentage distribution of demographic variables among primipara mothers.

Socio-demographic characteristics	Frequency (n)	Percentage (%)
Age (years)		
18-21	102	42.5
22-25	106	44.16
26-29	24	10.00
≥30	8	3.33
Religion		
Hindu	177	73.75
Muslim	62	25.83
Others	1	0.41
Residence		
Rural	89	37.03
Urban	151	62.91
Occupational status		
Employee	10	4.16
Housewife	206	85.83
Labourer	24	10.00
Education level		
Illiterate	5	2.08
1st to 5th standard	75	31.25
7th to 10th standard	143	59.58
11th to 12th standard	10	4.16
Graduation	7	2.91

In present study out of the 240 mothers, almost half of the mothers preferred the cross-cradle hold position (Table 2).

Table 2: Maternal preferences for breastfeeding position.

Adopted breastfeeding position	Total (240) (%)
Cross-cradle hold	121 (50.42)
Other breastfeeding positions	119 (49.58)

The weight gain in male babies at 1 month was significantly higher in cross cradle hold compared to other breastfeeding positions (p value <0.0001).

Similarly, in female babies the weight gain at 1 month was significantly higher in cross cradle hold compared to other breastfeeding positions (p value=0.0001) (Table 3). Table 4 shows that the length gain at 1 month were significantly higher in cross cradle hold compared to other breastfeeding positions for male babies (p value=0.0092) while for female babies the difference was statistically not significant (p value=0.1761).

Table 3: Comparative weight gain in male and female babies.

Weight	Cross cradle hold	Other breastfeeding positions	t-test	P value
Male				
Birth	2837±306.56	2749.43±321.1		
1 month	5620.37±560.96	5246.52±542.97	-5.597	0.0001
Mean weight gain	2783.37±298.93	2497.09±296.93		
Female				
Birth	2667.52±286.98	2583.02±263.96		
1 month	5267.32±510.31	4909.59±510.84	-5.278	0.0001
Mean weight gain	2599.8±245.7	2326.57±279.41		

Table 4: Comparative length gain in male and female babies.

Weight	Cross cradle hold	Other breastfeeding positions	t-test	P value
Male				
Birth	50.25±1.38	49. 65±1.35		
1 month	54 .04±1.43	53.2±1.31	-2.644	<0.0092
Mean length gain	3.79±0.53	3.56±0.48		
Female				
Birth	49.47±1.23	49.02±1.05		
1 month	53.11±1.28	52.49±1.14	-1.362	0.1761
Mean length gain	3.63±0.48	3.47±0.69		

DISCUSSION

In present study, out of the 240 mothers 50.42% were reported to prefer the Cross- cradle hold position while 49.58% prefer other breastfeeding hold position during their hospital stay.

In a study by D'Souza et al from India, cross-cradle hold was the most commonly reported breastfeeding position by mothers.[7] Similarly, in Nigeria, Mbada et al reported that majority (80.4%) of the breastfeeding mothers are adapting cross-cradle hold position due to comfort of mother/baby and convenience.[8]

In a group of Pakistani women, Rani et al found that 70.8%, 21.3%, 5.8%, and 1.0% of the women used the cross-cradle, side-lying, cradle hold, and football hold positions, respectively.[9] Aoki et al from Japan and Bency et al from India reported that mothers generally utilized cradle hold position.[10,11]

The World Health Organization has established standards for infant and child growth. In general, during the first six months, a baby grows in length about one inch per month. Most infants will gain about a pound over their birth weight by one month.[12,13]

The factors that determine height are genetics (the height of a child's mother, father, and other family members), gender (boys tend to be taller than girls), nutrition, physical activity, overall health, and sleep pattern.

In present study the weight and length of all the neonates were assessed after one month. The neonates of the mothers who had adopted cross cradle hold had significantly more weight gain and also demonstrated more gain in length at one month of age compared to other breastfeeding hold positions.

Patel et al in their study also compared effect of two breastfeeding techniques (cradle and cross cradle) of mothers on weight pattern of term newborn and they did not observe any significant difference in mean weight pattern of babies on day 1, day 2, day 3 between the two groups.[14]

Dalal et al in their study showed that median weight gains per day between 0 and 14 weeks was significantly higher (p=0.000) in intervention care group (32.7 g) as compared with standard care group (28.05 g), reveals the significance of regular infant weight monitoring in influencing mothers who can 'see' the progressive weight increase and gain confidence in the adoption and continuation of the cross-cradle hold method as an effective breastfeeding technique.[15]

Dash et al in their study found that video assisted teaching regarding cross cradle hold has improved the level of

attachment which in turn improves the weight gain pattern among the newborn on days 0, 2, and 4.[16]

This study demonstrates effects of cross cradle hold position on weight and length pattern of babies after one month which is also not reported in most of such studies, so this can be considered as an interim study in this regard.

This was a hospital-based study with small sample size and only one month follow up period. A similar community-based study with larger sample size and longer follow up period can be conducted.

CONCLUSION

Significantly more gain in weight and length of neonates were observed at the end of one month in the group where mothers have adopted cross-cradle breastfeeding position.

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