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EVIDENCE BASED ASSESSMENT OF GROWTH OF EXCLUSIVELY BREASTFED V/S NOT EXCLUSIVELY BREASTFED INFANTS IN A TERTIARY CARE CENTRE OF SOUTHERN RAJASTHAN

Community Medicine

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ABSTRACT

To achieve optimal growth of infants, exclusive breastfeeding is essential. Hence, this study was aimed to assess growth of exclusively breast fed v/s not exclusively breastfed infants in a tertiary care centre of Southern Rajasthan. A cross sectional study was conducted at immunisation clinic at Bal Chikitsalaya, Udaipur on 100 infants aged 14 weeks. A pretested semi-structured questionnaire was used for their mothers. Growth measurements (weight and length) of infants were taken using standardized techniques. Data was entered and analysed by using Microsoft Excel version 2010 and SPSS 24 . 34% infants were found to be exclusively breastfed. Exclusively breastfed males had significantly higher weight and length than their non- exclusive counterparts at 14 weeks. Exclusively breastfed females at 6 weeks had significantly higher weight than those not exclusively breastfed. Strong advocacy on importance of exclusive breastfeeding through IEC activities is necessary for optimal growth of infants.

KEYWORDS

Breastfeeding, growth, exclusive

INTRODUCTION

Infant feeding methods are a major determinant of infant nutritional status. Among feeding methods, breastfeeding is fundamental for survival, growth, development, health, and nutrition of infants.[1]

To achieve optimal growth, World Health Organisation (WHO) recommends that infants should be exclusively breastfed for the first six months of life. Exclusive breastfeeding is correlated strongly with increased infant survival and lowered risk of illness, particularly from diarrhoeal disease.[2] The risk of hospitalization for lower respiratory tract infections in the first year is reduced by 72% if infants are breastfed exclusively for more than 4 months.[3]

Globally in 2019, 144 million children under 5 were estimated to be stunted (too short for age), 47 million were wasted (too thin for height), and 38.3 million were overweight or obese. About 40% of infants 0–6 months old were exclusively breastfed.[4]

According to National Family Health Survey (NFHS) Round-4 (2015-16), exclusive breastfeeding rate for children under 6 months in Rajasthan and Udaipur was 58.2% and 48% respectively.[5]

There is paucity of research on association of exclusive breastfeeding and growth of infants in Rajasthan. Hence, this study was planned with the aim to assess growth of exclusively breastfed v/s not exclusively breastfed infants in a tertiary care center of Southern Rajasthan.

METHODOLOGY

A health facility based cross sectional study was conducted at Immunization clinic of Rabindra Nath Tagore Medical College, Udaipur from October to December, 2017. The study population included infants of 14 weeks age accompanied by their mothers attending the immunization clinic. Informed consent was obtained from the mothers. Severely ill infants were excluded from the study.

The sample size calculated using prevalence of exclusive breastfeeding in Udaipur as 48% (NFHS-4) and allowable error of 10% was found to be 96, which was rounded off to 100 for convenience purpose. Consecutive sampling was done.

A pre-tested semi-structured interview schedule was used to obtain data from mothers.Infants' weight and length at 14 weeks were measured after interviewing mothers. Their birth weight, weight at 6 and 10 weeks were recorded from the immunization cards available with the mothers.

Data was entered and analyzed by using Microsoft Excel version 2010 and Statistical Package for Social Sciences ver.24. Appropriate test of significance was applied i.e. Student's t- test for quantitative data. P value less than 0.05 was considered statistically significant.

RESULTS

The study included 100 infants, of which, 52% were males and 48% were females. The mean birth weight of infants was 2.8±0.52 kg. The mean birth weight of males was 2.92±0.50 kg and that of females was 2.66 ±0.50 kg. The study depicted that 34% of the infants were exclusively breastfed and 66% were non-exclusively breastfed.

The mean birth weight of exclusively breast fed males and females was found to be 2.84± 0.55 kg and 2.75 ± 0.51 kg respectively. However, the mean birth weights of non- exclusively breast fed males and females were 2.97±0.48 kg and 2.62±0.49 kg respectively.

Table 1: Association of breastfeeding status with weight of infants at 6, 10 and 14 weeks

Breastfeeding Status	Males				Females			
	Mean Weight(kg)	SD	WAZ-score	P value	Mean Weight(kg)	SD	WAZ-score	P value
At 6 weeks:				> 0.05				<0.05
Exclusive	4.51	0.63	-0.6		4.29	1.07	-0.52	
Non-exclusive	4.22	0.88	-1.05		3.81	0.58	-1.32	
At 10 weeks:				>0.05				>0.05
Exclusive	5.46	0.71	-0.49		5.21	1.20	-0.27	
Non-exclusive	5.05	0.83	-1.07		4.81	0.74	-0.84	
At 14 weeks:				<0.05				>0.05
Exclusive	6.38	0.74	-0.47		5.94	1.23	-0.25	
Non-exclusive	5.86	0.85	-1.24		5.67	0.88	-0.68	

As observed in table 1, the mean weight and WA (Weight for Age) Z score of exclusively breast fed male and female infants was higher than their non- exclusively breast fed counterparts at 6, 10 and 14 weeks of age. However, the mean difference in weight was statistically significant for males at 14 weeks and females at 6 weeks of age respectively.

Table 2: Association of breastfeeding status with average length of

infants at 14 weeks

Breastfeed	Males			Females		
	Mean length (cm)	SD	LA Z-score	Mean length (cm)	SD	LA Z-score
Exclusive	64.90	3.02	1.17	63.24	3.58	1.13
Non exclusive	62.44	3.23	-0.11	62.69	2.80	0.86
	P<0.05			P> 0.05		

Table 2 shows that the mean length and LA (Length for Age) Z score of exclusively breast fed males and females was higher than their non-exclusively breastfed counterparts at 14 weeks. Moreover, the association was statistically significant in case of males.

DISCUSSION

Out of 100 infants, 52% were males and 48% were females. 34% were exclusively breastfed while 66% were not exclusively breastfed. The mean weight of exclusively breastfed infants was higher than their non- exclusively breast fed counterparts at 6, 10 and 14 weeks of age. These findings are in unison with a study by Patel et al (2018) where infants in the intervention group (receiving lactation counseling where 97% mothers exclusively breastfed) weighed significantly more than those in the control group (where 49% mothers exclusively breastfed) at 6, 10 and 14 weeks.[6]

The mean length of exclusively breastfed infants was higher than non-exclusive counterparts at 14 weeks. In a study by Kuchenbecker et al (2015), exclusively breastfed infants had significantly higher mean values for length and weight, who were 1·08 cm longer and 0·46 kg heavier than their non- exclusive counterparts.[7]

The present study demonstrated that exclusively breastfed male and female infants had 3.9% and 0.87% more length respectively at 14 weeks than their non- exclusive counterpart. This data is comparable to an Italian study by Agostoni et al (1999), which showed that breastfed babies (both male and female) had at least 5% more weight and 3% more length than formula-fed babies.[8] Another study by Kramer et al (2009) among children aged 6.5 years in the Republic of Belarus demonstrated that children breastfed exclusively for 6 months had statistically significant higher mean values for BMI (Body Mass Index), but no statistically significant difference in height was observed in comparison to children exclusively breastfed for 3 months.[9] Chakrabarty et al (2006) conducted a study among children upto five years in Orissa and found that exclusive breastfeeding less than 6 months is a risk factor for underweight children (OR=2.97) and under nutrition (OR=1.13).[10]

In the present study, exclusively breastfed males and females had higher WA Z score at 6, 10 and 14 weeks and higher LA Z score at 14 weeks than their non-exclusive counterparts. This data is comparable to study by Agostoni et al (1999) which showed that breast fed infants had significantly higher growth indices at 1 month (WA, LA), 2 months (WA) and 3 months (WA, LA) of age.[8] Hop et al (2000) in their study among Vietnamese children found that exclusively breast-fed infants grew more quickly in both weight and length from 1 to 3 months, followed by predominantly breast-fed infants[11]. Wright et al (2015) showed that breastfeeding was significantly associated with higher LAZ and WAZ.[12]

In contrast to above study findings, a study by Mandic et al (2010) showed that exclusively breastfed infants in Croatia gained the least weight over a 12 month period compared with formula fed and mixed fed infants.[13] Griffiths et al (2009) showed that infants receiving no breast milk grew faster than those whose mothers initiated breastfeeding (adjusted regression coefficient (difference in z-scores) 0.06, 95% CI 0.02 to 0.09), as did those breastfed for less than 4 months (0.05, 95% CI 0.01 to 0.09) versus those breastfed 4 months or longer.[14]

CONCLUSION

Exclusively breastfed males had significantly higher weight and length than their non- exclusive counterparts at 14 weeks. Exclusively breastfed females had significantly higher weight than their non-exclusive counterparts at 6 weeks.

Strong advocacy on importance of exclusive breastfeeding through IEC activities is necessary for optimal growth of infants.

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