TO ASSESS PREVALANCE OF VARIOUS FEEDING TECHNIQUES USED FOR CHILDREN WITH CLEFT LIP/PALATE PREVALENT IN SOUTHERN INDIA AND TO ASSESS THEIR EFFECTIVENESS IN IMPROVING ENERGY INTAKE AND GROWTH OF CHILDREN WITH CLEFT LIP/PALATE

ABSTRACT

Aim: To assess various feeding techniques used for children with cleft lip/cleft palate

Introduction: Cleft lip/palate is a condition wherein there is an opening or slit in the upper lip/palate. Maintaining optimum nutrition in children with cleft lip/palate is a challenge owing to the feeding and swallowing difficulties these children face.This article aims to discuss various feeding techniques used in southern India and to analyse their effectiveness in helping the infant with weight gain and overall development.

Materials & Methods: Cross sectional study done in south India using structured questionnaire. It consisted of 100 children <2 years of age visiting the cleft clinic in Saveetha Medical College and Hospital. Data was analysed statistically and evaluated using chi square test.

Results: This study concluded that paalada (65%)was the most commonly used technique to feed children with cleft lip/palate in southern India. The study also concludes that formula feed was the most widely used feed to effectively increasing weight of the child with cleft lip/palate. Education about feeding practices is vital in helping the mother understand the importance of healthy weight gain, growth and development.

Conclusion: Though the majority of parents visiting a cleft clinic are educated on the do's and don'ts of feeding a child with cleft lip/cleft palate, the data is inconclusive of the exact situation in India, so more research on the subject is needed to improve the feeding experience of children with cleft lip/cleft palate.

INTRODUCTION

Cleft lip/palate is a condition wherein there is an opening or slit in the upper lip/palate. Maintaining optimum nutrition in children with cleft lip/palate is a challenge owing to the feeding and swallowing difficulties these children face due to the inability of the child to suckle optimally and along with this there is also associated aspiration when the child swallows as the airway is not protected[(1)]. This is the reason why most of these children are documented to have

low weight percentile and growth retardation when compared to the children without cleft lip/palate of the same age group. According to many health workers, breast feeding is the most beneficial for both the infant and the mother. But the problem with infants with cleft lip/palate is that these infants cannot latch and suckle effectively. So growth and overall development staggers in these infants. Having optimum weight of about 10kg is essential in these children if they are to be taken up for surgery. For this reason many tertiary care centres have recruited feeding counsellors to help the mothers understand various feeding techniques and most importantly how to position the baby upright while feeding and burp it after feeding to avoid aspiration. They also suggest various supplementary feeds to help the baby gain weight. This article aims to discuss various feeding techniques used in southern India and to analyse their effectiveness in helping the infant with weight gain and overall development.

MATERIALS AND METHODS

A total of 100 subjects of less than 2 years of age with cleft lip/palate visiting the cleft clinic, Saveetha Medical College & Hospital, Thandalam, Kanchipuram District were chosen through convenience sampling. The data was collected after explaining to the parents about the nature of the study and consent was obtained. The data was entered into Microsoft Excel. They were divided into 3 groups as: age less than 6months, 6months to 1 year and 1 to 2 years. First, these groups were individually analysed for the prevalence of various feeding techniques amongst the genders. Then to find out the effectiveness of these feeding techniques, weight recordings of these children before and after feeding counselling were recorded. An average was found for each feeding technique and also for the type of feed given. This average was used in comparing the effectiveness of the feeding technique and the type of feed. Chi-square test was applied to find out any significant difference in the effectiveness of feeding techniques.

The 100 subjects were grouped into 3 categories considering their age as less than 6 months, 6 months to one year and between one and two years.

RESULTS

1. Prevalence of various feeding techniques

Out of the total 100 subjects; 33 had cleft lip, 21 had cleft palate and 46 had combined cleft lip/palate. The study is aimed at finding out the prevalence of various feeding techniques in

southern India. 65 of these children were fed using paalada, 15 of them bottle fed, 12 of them spoon fed, 4 of them breastfed, 2 of them fed using a tumbler and 2 of them using nissty cup. On the whole paalada seems to be the most used feeding technique owing to its nativity as a Indian and more importantly by being easy, affordable and easily accessible tool to the lower socio-economic class. The least preferred are tumbler as it is associated more with regurgitation and nissty cup due to their extremely high price point.

Group 1 had a total of 3 subjects. Out of the 2 male subjects – one bottle fed and one fed using paalada; and the female subject was bottle fed

Group 2 had a total of 60 with 32 male and 28 female subjects. Out of the 32 male subjects; 21 were fed paalada, 4 were bottle fed, 3 spoon fed , 1 breast fed, 2 fed using tumbler and 1 using nissty cup. Out of the female subjects; 16 were fed using paalada, 6 were bottle fed, 4 were spoon fed and 2 were breastfed.

Group 3 had a total of 37 with 17 male and 20 female subjects, out of the 17 male, 13 were fed using paalada, 2 were bottle fed, 1 spoon fed and one using a nissty cup. Out of the female subjects; 13 were fed using paalada, 5 were bottle fed and 2 using a spoon.

60% of the subjects were fed using paalada, 15% using bottle, 12% spoon fed , 4% breast fed and 2% using a nissty cup.

Table 1. Prevalence of various feeding techniques

LESS THAN 6 MONTHS	BOTTLE	PAALADA	SPOON	TUMBLER	BREASTFED	NISSTY CUP
MALE (2)	1	1				
FEMALE (1)	1					
6 MONTHS TO 1 YEAR						
MALE (32)	4	21	3	2	1	1
FEMALE (28)	6	16	4		2	
1 YEAR TO 2 YEARS						
MALE (17)	2	13	1			1
FEMALE (20)	5	13	2			

1. **Role of type of feed used in weight gain of infant**

The study is aimed at assessing the efficiency of feeding counselling and how much the

type of feed used affected the weight gained by each child. Out of these 100 children; 57 were fed formula feed and showed an average weight gain of 0.81 kg, 29 of them were fed cow's milk which had an average weight increase of 0.65 kg, 6 of them were fed ragi which had an average weight increase of 0.45 kg, 4 of them were fed breast milk and showed an average weight increase of 0.55 kg.

2. Effectiveness of various feeding techniques in increasing weight

Out of the 100 subjects; 65 of them were fed using paalada and had an average weight gain of 0.79 kg, 19 of them were bottle fed and had an average weight gain of 0.81 kg, 12 of them were spoon fed and had an average weight gain of 0.4 kg, 2 of them were fed using tumbler and had an average weight gain of 0.5 kg and 2 of them were fed using nissty cup and had an average weight gain 0.9 kg.

Group 1 consisted of 2 paalada with an average weight gain of 0.45 kg, 1 breastfed with an average weight gain of 0.7 kg. Group 2 consisted of 37 paalada with an average weight gain of 0.8 kg, 9 spoon fed with an average weight gain 0.4 kg, 3 bottle fed with an average weight gain of 0.7 kg, 2 tumbler fed with an average weight gain of 0.5 kg, 3 breastfed with an average weight gain of 0.4 kg, 1 nissty cup with an average weight gain of 1 kg.

Group 3 consisted of 26 paalada with an average weight gain of 0.6 kg, 7 bottle fed with an average weight gain of 0.8 kg, 3 spoon fed with an average weight gain of 0.8 kg.

LESS THAN 6 MONTHS	FORMULA FEED	COWS MILK	CERELAC	RAGI	BREASTMILK	AVERAGE WEIGHT GAIN (Kg)
PAALADA (2)	1	1				0.45
BREASTFED (1)					1	0.7
6 MONTHS TO 1 YEAR						
PAALADA (37)	25	8	1	3		0.8
SPOON (9)	2	4	2	1		0.4
BOTTLE (3)	5	3				0.7
TUMBLER (2)	2					0.5
BREASTFED (3)					3	0.4
NISSTY CUP (1)	1					1
1 TO 2 YEARS						
PAALADA (26)	17	9				0.6
BOTTLE (7)	3	2	1	1		0.8
SPOON (3)	1		1	1		0.8

1. **Table 2. Effectiveness of various feeding techniques in increasing weight**

A table was constructed to ascertain the prevalence of various feeding modalities and their effectiveness was included by taking into consideration, the average weight gain using each technique and feed. On bivariate analysis of statistics, significant association was found between feeding technique and increase in weight ($p<0.05$).

	VALUE	df	ASYMPTOTIC SIGNIFICANCE (2 SIDED)
PearsonChiSquare	7.953[a]	2	.019
Likelihood ratio	8.734	2	.013
Linear by linear association	2.346	1	.126
N of valid cases	100		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.86.

Table 3. **ASYMPTOTIC SIGNIFICANCE**

DISCUSSION

The rising number of feeding issues faced by new moms of infants with cleft lip/palate has prompted the healthcare system realise the urgent need for cleft care clinics to be established alongside traditional techniques. Hospitals have begun to establish specialised cleft care clinics and assign personnel to advise and coach parents of children with cleft lip/palate about feeding practises, the types of feeding supplements to pick based on the child's needs, and the family's financial position.

They also help avoid any usual difficulties they face during feeding the child, help in coordinating and scheduling surgeries, help prepare the baby to be fit for the surgery, maintain extensive records on them.More emphasis has recently been paid to the current field of cleft care, which was formerly thought to be the duty of allied medical professions. There is evidence of a growth delay in children with a cleft as compared to those without a cleft, which can lead to long-term health consequence[(2)] Babies with isolated clefts of the hard and soft palate had the most eating difficulties and lost the most weight. The majority of feeding problems are caused by reduced sucking effectiveness[(3)].Infants with congenital defects, on the other hand, will have difficulty sucking since a negative pressure cannot be created within the mouth. (4) Inability to feed adequately can also be related to poor mother–infant bonding, which is caused by maternal stress and worry. Furthermore, poor weight gain in children was linked to a mother's low self-esteem and that of her kid. Prior to the birth of their children, the majority of women were encouraged to breastfeed their infants, but no effort was made to push one way of feeding over another.

[5)]Finding a feeding approach that is as near to normal as feasible is the objective while feeding an infant with cleft lip/palate. Nursing is the most beneficial for both the child and the mother, according to the majority of health care professionals. Modifying the quality feeding techniques by carefully placing the baby's head or utilizing a combination of modified methods is the preferred approach to the usage of feeding plates. Paalada feeding was shown to be the most prevalent feeding method used by parents of children with cleft lip/palate in the current study. The improved approach resulted in a shorter feeding time, less spill, and less regurgitation in cleft lip/palate newborns.

[(6)] Based on other studies similar to the current one, it has been noted that spoon feeding was the most common feeding method practiced by the parents of children with cleft lip and palate owing to its easy

use and availability.[7]For a child's entire growth, it's critical to utilise the right feeding strategies for the different types of clefts and the stages of his or her life. [8] At the initial evaluation, patients with cleft lip/palate required considerably less treatments and were more likely to be given breast milk alone or in conjunction with formula. Cleft lip/palate babies were much less likely to obtain any breast milk. Cleft lip and palate patients required regular dietary supplementation. [9] In comparison to children without cleft lip/palate, infants with cleft lip/palate got breast milk for a shorter period of time. [10,11] Support from healthcare professionals, particularly lactation specialists and nursing staff, is critical. Breastfeeding and the use of human milk should be prioritized and supported.[12] Recovery seemed to be related to successful education and feeding interventions.[13] Early education paired with a nutritional intervention strategy can enhance weight gain, feed and drink intake, as well as support the child's normal development and growth.

CONCLUSION

This study concluded that paalada was the most commonly used technique to feed children with cleft lip/palate in southern India. The study also concludes that formula feed was the most widely used feed to effectively increasing weight of the child with cleft lip/palate. Though the majority of parents visiting a cleft clinic are educated on the do's and don'ts of feeding a child with cleft lip/cleft palate, the data is inconclusive of the exact situation in India, so more research on the subject is needed to improve the feeding experience of children with cleft lip/cleft palate.

ETHICAL COMMITTEE CLEARANCE: Obtained

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