CHARACTERIZATION OF THE FEEDING DEVELOPMENT OF PRETERM INFANTS BETWEEN THREE AND TWELVE MONTHS

Caracterização do desenvolvimento da alimentação de crianças nascidas pré-termo entre três e 12 meses

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ABSTRACT

Purpose: characterizing the feeding development of preterm infants between three and 12 months, those were born in Canoas/RS, checking the breastfeeding type, the timing of introduction of complementary feeding, the deleterious oral habits, the guidance received, the feeding difficulties and the sociodemographic profile. **Methods:** this study was evaluated and approved by the ethics committee of ULBRA under no. CEP-2011-480h ULBRA. This is a descriptive, quantitative and transversal study. Interviews with those responsible and evaluation of 32 children born preterm who attended follow-up appointments at a hospital in Canoas took place. **Results:** we found that only 37,5% (N=12) of the children received exclusive breastfeeding and the duration period was 31 days. Liquids were offered early; pasty food introduction was adequate time and the offer of solid food was performed early, considering the chronological age of the children. Parents reported that in 53,1% (N=17) of the babies had feeding difficulties. It was a significant association (p=0,004) between food refusal, extreme prematurity and very low birth weight. Furthermore, we observed significant association (p=0,047) between lips', tongue' and cheeks' sagging and extreme prematurity. **Conclusion:** exclusive breastfeeding was uncommonly practiced while complementary breastfeeding also showed low prevalence and low rates of duration. Just over half of the population complained of feeding difficulty and a significant association between extreme prematurity, extreme low birth weight and food refusal was found. Furthermore, an association was found between lips', tongue' and cheeks' sagging and extreme prematurity. It is evident the need of further extensive research in this area.

KEYWORDS: Infant, Premature; Breast Feeding; Supplementary Feeding; Speech, Language and Hearing Sciences

INTRODUCTION

The scientific and technological advances in the area of obstetric health, perinatal and neonatal care in the past two decades, resulted in an increase of the survival rate of risk infants, including preterm infants - below 37 weeks of gestational age[1]. In contrast, many morbidities have emerged with the use of technology[2].

Newborns can be classified by gestational age, being considered as a newborn at term all infants born between the 37th and 42th week of gestation. Therefore, infants born bellow 37 weeks are considered to be preterm. Premature infants are further classified according to the degree of prematurity: borderlines born with gestational age between 35 and 36 weeks, preterm age between 31 and 34 weeks, and extremely preterm infants with gestational age less than or equal to 30 weeks[3].

Newborns are also classified according to their birth weight. Infants born weighing between 1501 and 2500g are denominated underweight newborns, those who are born weighing between 1001 and 1500g are named newborns with very low weight, and those who are born weighing less than 1000g are called newborns with extremely low weight[2].

Among the basic needs for survival, growth and development appropriate for a newborn, nutrition is

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Conflicts of interest: none

considered as very important. Breastfeeding is the most natural, physiological and safe food for infants in the first months of life[3,4]. Breastfeeding should be unique until six months old, and from this one it should be started supplementation with other kind of foods, but keeping breastfeeding, together with complementary feeding, provides benefits up to two years or more[3].

A newborn at term born with conditions to be feed by oral route, obtains success in coordinating the sucking, swallowing and breathing, without prejudice to their vital functions. Already a preterm, because of their immaturity brain has limitations such as difficulty of staying on alert, predominantly extensor tone and absent or incomplete oral reflexes, hindering oral feeding in the first moments of life[5,6]. Such factors may slow weight gain. The indication of probes can further delay the feed function, and consequently delays discharge.

At six months it should be started the offer of complementary feeding (CF) in order to meet nutritional needs and supplement the numerous qualities and functions of brestfeeding[7]. An appropriate supplementation must contain balanced foods with appropriate amount of micro and macronutrients, contamination-free, easily accessible, with acceptable cost, prepared with usual food of the family routine[8,9]. Initially, it must be pasty and thick. After eight months it is initiated solid food which can be mashed, chopped or cut into small pieces. Until 12 months, the infant should be fed with the same food eaten by the family and also with breastfeeding.

The movements of the stomatognathic structures made during sucking, chewing and munching lead to a proper oral development in the first years of life[10]. The inadequate introduction of CF can negatively impact the current and future infant health. If the process of complementary feeding is started too late, it could result in deficit growth or anemia[7] also impairing the growth and development of the facial structures involved[10]. Likewise, the early introduction of foods may result in development of allergic disease[7] leading to the rupture of a proper oral development, resulting in difficulties in chewing and articulation of speech sounds, facilitating the installation of incorrect breathing pattern [10].

From birth until the time when the infant show that they are independent to feed, their food goes through several changes. However, these do not always have good acceptance by the infant or the parents, and may cause the appearance of difficulties related to food at the moment of transition of consistencies. Behaviors such as refusal to eat, vomiting, nausea, crying, irritability, gagging and coughing may be present during this period, especially in preterm infants[11].

The lack of information about the eating habits in the early preterm lifes[12], since they are part of a group with risk to early weaning and malnutrition, brings the need for further research in this area, so it could be established a profile of these infant, and it could be drawn more specific guides for their responsible.

Therefore, the aim of this study was to characterize the development of a group of premature infants among 3 and 12 months, born in Canoas / RS by checking the type of feeding, time of introduction of complementary feeding, deleterious oral habits, guidance received, feeding difficulties and socio-demographic profile.

METHODS

This study was evaluated and approved by the Ethics Committee of ULBRA under nº. CEP-2011-480h ULBRA.

A cross-quantitative descriptive study was conducted, with a sample of 32 children who attended the pediatric outpatient clinic and neonatal ICU of the University Hospital of ULBRA / Mãe de Deus, between May and October 2012.

It was included preterm infants who have at the time of this research, between 3 and 12 months of chronological age, of both genders, who attended the pediatric visits. The caretakers were in accordance with the terms of the research and signed the free and informed consent. It was excluded the newborns with malformations, suspected of genetic syndrome, neuropathic, or mothers with human immunodeficiency virus, maternal illness that hinder breastfeeding, maternal death, adoption, twins and those with insufficient data. In a room made available by the hospital, it was performed an interview[13] with the infants mothers with questions related to sociodemographic data; childbirth; type and manner of food preparation, oral habits, such as bottles and pacifiers, and feeding difficulties.

In the interview, it was considered as thin liquids: water, juices, soft drinks, teas, milk chocolate or coffee. It was considered as thickened liquids: milk with flour, beats, yogurts, and liquefied fruit. When the two types of liquids were consumed, it was used the term “either”. The evaluation of the stomatognathic system was conducted through observation and palpation in order to verify the shape, posture and tone of the structures. It was analyzed the organs of the stomatognathic system, face symmetry , lips posture, tone lip, tongue posture, tongue shaping, lingual tone, tone of cheeks, teeth and palate.

The evaluation of the stomatognathic functions was performed with standardized food (water, yogurt and biscuits) according to the infant current diet, offered by those responsible in the usual way. Through observation, it was analyzed nutritive sucking, tongue position in liquid pasty and solid swallowing. At the end of the procedure, the responsible received a folder with guidelines about infant development.

All data were stored in the database program Microsoft Office Excel 2007 and analyzed using SPSS software version 11.0. The Fisher Exact Test was used to test associations between variables. It was considered significant if $p < 0.05$.

RESULTS

The sample consisted of 32 infants, 21 (65.6%) males and 11 (34.4%) females. Regarding the delivery, 25 (78.1%) had cesarean birth and 7 (21.9%) were delivered vaginally. Regarding the gestational age, the mean was 31.3 weeks, and the minimum gestational age was of 26 and the maximum of 36 weeks. About the degree of prematurity, 11 (34.4%) was extremely premature, 16 (50%) were moderate preterm and 5 (15.6%) were borderline. The mean chronological age of the sample was 4 months and 27 days and the age ranged from 90 days to 10 months and 29 days. The corrected age showed an average of 1 month and 27 days, with a minimum of 8 days and a maximum of 9 months and 24 days.

The mean birth weight was 1445.5 g, with minimum of 653g and maximum of 3890g. Nine infants (28.1%) had extremely low birth weight, 13 (40.6%) were born with very low birth weight and 8 (25%) had low birth weight. The average current weight of children with chronological age between 3 months and 5 months and 29 days was 4315.4 g, ranging between 2790g and 5600g. The average current weight of children with chronological age between 6 and 12 months was 7017.5g, ranging between 4450g and 9350g. Regarding the characteristics of responsibles, the median age was 29 years, ranging between 18 and 40 years. The families had on average 1.6 children, whereas 19 (59.4%) mothers were primiparous. Regarding family income, the average was R $ 1,635.00 per month, ranging between £ 500 and £ 8000, however, half of the families had incomes below two minimum salaries. Among the responsible, 14 (43.8%) had education level of high school education, 11 (34.4%) had incomplete primary education, three (9.4%) had incomplete secondary education, 2 (6.3 %) had completed elementary school, 1 (3.1%) had incomplete higher education and 1 (3.1%) had university degree

Only 1 (3.1%) children did not receive probe feeding. Exclusive breastfeeding (EBF) was held by only 12 (37.5%) children and the average duration was only of 31 days, whereas 4 (12.5%) infants were still exclusively breastfed during the research time. Eight (25%) children were never breastfed. The duration of breastfeeding with supplementation, the current research found an average of 75.5 days for 10 (31.2%) children who had already been weaning. The remaining 14 (43.8%) cases followed receiving breastfeeding. Half of the sample used pacifier and the average age of introduction was 1 month and 17 days. There was no significant association between pacifier use and shortened time of EBF.

In the current feeding, bottle feeding was used by 28 (87.5%) cases, with a mean age of initial introduction of 1 month and 10 days. Of the 28 (87.5%) children examined, 5 (17.9%) reported that there was an increase of the hole of the bottle; 23 (71.9) reported only thin fluid intake, 1 (3.1%) reported consumption and four thickened liquids (12.5%) reported the use of both. Consequently, the supply of other liquids occurred early. The introduction of pasty (fruits, vegetable soup) was performed at the appropriate time and the introduction of solids (cracker and meat) was performed early, if considered chronological age, according to the recommendations of the Ministry of Health[3], as it is seen in Table 1.

In Table 2, it can be observed the median age of food introduction according to the degree of prematurity.

Table 1 - Sample distribution regarding current cronological age and median (days) of food introduction

	Cronological age	Consumed	Not consumed	Median (days)	Minimum (days)	Maximum (days)
Age of introduction of other kind of milk	Up to 5 months and 29 days	20 (83,3%)	4 (16,7%)	30	7	90
	Up to 6 and 12 months	8 (100%)	0 (0%)	53	0	80
	Total	28 (87,5%)	4 (12,5%)	30	0	90
Age of water introduction	Up to 5 months and 29 days	6 (25%)	18 (75%)	90	30	120
	Up to 6 and 12 months	7 (87,5%)	1 (12,5%)	120	10	270
	Total	13 (40,6%)	19 (59,4%)	120	10	270
Age of tea introduction	Up to 5 months and 29 days	12 (50%)	12 (50%)	80	30	120
	6 to 12 months	6 (75%)	2 (25%)	120	21	210
	Total	18 (56,3%)	14 (43,8%)	90	21	210
Age of juice introduction	Up to 5 months and 29 days	0 (0%)	24 (100%)	-	-	-
	6 to 12 months	8 (100%)	0 (0%)	180	105	270
	Total	9 (25,8%)	23 74,2%)	180	105	270
Age of fruit introduction	Up to 5 months and 29 days	0 (0%)	24 (100%)	-	-	-
	6 to 12 months	8 (100%)	0 (0%)	180	120	300
	Total	8 (25%)	24 (75%)	180	120	300
Age of soup introduction	Up 5 months e 29 days	0 (0%)	24 (100%)	-	-	-
	6 to 12 months	8 (100%)	0 (0%)	180	150	300
	Total	8 (21,9%)	24 (78,1%)	180	150	300
Age of meat introduction	6 to 12 months	3 (37,5%)	5 (62,5%)	210	150	210
	Total	3 (9,4%)	29 (90,6%)	210	150	210
Age of cookie introduction	Up to 5 months and 29 days	0 (0%)	24 (100%)	-	-	-
	6 to 12 months	7 (87,5%)	1 (12,5%)	180	120	300
	Total	7 (21,9%)	25 (78,1%)	180	120	300

Table 2 - Sample distribution according to the prematurity degree and the median (days) of food introduction

	Prematurity	Consumed	Not consumed	Median (days)	Minimum (days)	Maximum (days)
Age of Milk introduction	Extreme	10 (90,9%)	1 (9,1%)	70	30	90
	Moderate	13 (81,3%)	3 (18,7%)	30	15	60
	Boderline	5 (100%)	0 (0%)	7	0	45
	Total	28 (87,5%)	4 (12,5%)	30	0	90
Age of water introduction	Extreme	4 (36,7%)	7 (63,3%)	120	120	180
	Moderate	5 (31,2%)	11 (68,8%)	120	30	270
	Boderline	4 (80%)	1 (20%)	75	10	120
	Total	13 (40,6%)	19 (59,4%)	120	10	270
Age of tea introduction	Extreme	4 (36,7%)	7 (63,3%)	120	70	120
	Moderate	9 (56,3%)	7 (43,7%)	90	30	210
	Boderline	5 (100%)	0 (0%)	90	21	120
	Total	18 (56,3%)	14 (43,8%)	90	21	210
Age of juice introduction	Extreme	2 (18,2%)	9 (81,8%)	165	150	180
	Moderate	3 (18,7%)	13 (81,3%)	180	180	270
	Boderline	4 (80%)	1 (20%)	150	105	180
	Total	9 (25,8%)	23 74,2%)	180	105	270
Age of fruit introduction	Extreme	2 (18,2%)	9 (81,8%)	180	180	180
	Moderate	3 (18,7%)	13 (81,3%)	200	150	300
	Boderline	3 (60%)	2 (40%)	150	120	180
	Total	8 (25%)	24 (75%)	180	120	300
Age of vegetables soup introduction	Extreme	2 (18,2%)	9 (81,8%)	180	180	180
	Moderate	3 (18,7%)	13 (81,3%)	200	165	300
	Boderline	3 (60%)	2 (40%)	150	150	180
	Total	8 (21,9%)	24 (78,1%)	180	150	300
Age of meat introduction	Extreme	1 (9,1%)	10 (90,9%)	210	210	210
	Moderate	0 (0%)	16 (100%)	-	-	-
	Boderline	2 (40%)	3 (60%)	180	150	210
	Total	3 (9,4%)	29 (90,6%)	210	150	210
Age of cookie introduction	Extreme	1 (9,1%)	10 (90,9%)	180	180	180
	Moderate	3 (18,7%)	13 (81,3%)	210	180	300
	Bodeline	3 (60%)	2 (40%)	180	120	180
	Total	7 (21,9%)	25 (78,1%)	180	120	300

At the moment of the research, of 8 (25%) children who received fruit, only 1 (3.1%) received sliced fruits and the other 7 (21.9%) received mashed fruits. The most consumed fruits were banana (21.9%), apple (18.8%), papaya (18.8%), plum (6.3%) and pear (6.3%). Regarding vegetable soup, all 7 (21.9%) children who received into their current feed, received it in mashed consistency. All 3 (9.4%) children who consumed meat received it in pieces, and all 7 (21.9%) ate it without receiving wafer processing. No child received industrialized snacks and soda.

In this research, when questioning parents about the sources of information for the introduction of food and consistency to their children, it was observed that in 24 (75%) cases who reported having received a guidance, half of the respondents cited the medical as a source, 9 (28.1%) cited the audiologist, 7 (21.9%) cited family, 1 (3.1%) cited the nutritionist and 1 (3.1%) also reported having read the child health handbook. By questioning the parents if, in their opinion, their children had feeding difficulties, only six (18.8%) responsible answered yes. However, asking about every difficulty alone (solid or pasty refusal; nausea

or vomiting, gagging or coughing, crying because do not want to eat; delays to feed), as shown in Table 3, parents reported that 17 (53.1%) infants had feeding difficulties. Association was found (p = 0.004) between the variable cries because it does not want to eat (food refusal) and extreme prematurity and very low birth weight.

Table 4 presents the evaluation of the structures and functions of the stomatognathic system. The association (p = 0.047) between flaccidity lips, tongue and cheeks and the degree of prematurity is shown in Table 5.

Table3 - Sample distribution according to the feeding difficulty reported

Feeding difficulty	Sample	n	%
Pastry or solid rejection	32	0	0%
Nausea or vomiting during or after feeding	32	13	40,6%
Gagging or coughing during or after feeding	32	8	25%
Cries because doesn't want to eat	32	4	12,5%
Delays to eat	32	2	6,3%

Table 4 - Sample distribution according to the evaluation of the stomatognathic structure and fuction

Items assessed	Sample	n	%
Facial assimetry	32	1	3,1%
Lips posture without sealing	32	3	9,4%
Flaccid lips	32	9	28,1%
Flaccid tongue	32	9	28,1%
Flaccid cheeks	32	9	28,1%
Erupting teeth	32	2	6,3%
Primary incomplete dentition	32	3	9,4%
Without dentition	32	27	84,4%
High hard palate	32	4	12,5%
Incoordination between sucking, swalloing and breathing	32	7	21,9%
Child swallowing of liquids	32	32	100%
Child swallowing of pastry	8	8	100%
Munching chewing	7	7	100%

Tabela 5 – Association between prematurity degree and flaccidity of lips, tongue and cheeks

		Moderate						Valor de p
		Extreme		Prematurity		Boderline		
		n	%	n	%	n	%	
Lips tonicity	Normal	5	45,5	13	81,3	5	100,0	0,047*
	Flaccid	6	54,5	3	18,8			
	Total	11	100,0	16	100,0	5	100,0	
Tongue tonicity	Normal	5	45,5	13	81,3	5	100,0	0,047*
	Flaccid	6	54,5	3	18,8			
	Total	11	100,0	16	100,0	5	100,0	
Cheek tonicity	Normal	5	45,5	13	81,3	5	100,0	0,047*
	Flaccid	6	54,5	3	18,8			
	Total	11	100,0	16	100,0	5	100,0	

Fischer's exact test
* Significant Values (p < 0,05)

DISCUSSION

Most cases of this study showed low weight birth, very low weight birth or extremely low weight birth. Birth weight is considered one of the most important indicators of the quality of life of the newborn, being significantly related with the infant and neonatal mortality. For this reason, the World Health Organization has identified low birth weight as the most important risk to be considered in prematurity[3].

In a research conducted with children up to 30 months of age, attended by a care service attention to malnourished, it was found a high percentage of children with low birth weight and prematurity. In this same study, these high rates suggested that these may be factors that favor the emergence of a future nutritional deficit[14].

A study conducted in Ribeirão Preto showed a statistically significant difference between the type of feeding and birth weight. It was found that the prevalence of exclusive breastfeeding (EBF) grows with an increasing birth weight, which is higher among preterm infants with 2500g or more. The prevalence of partial breastfeeding was higher in premature infants weighing between 1000 and 1999g and artificial feeding was more prevalent among babies with extremely low weight[15].

However, another study with 253 preterm born in southeast England, which aimed to identify the infant feeding practices and the factors that influence the introduction of complementary feeding showed that the group of infants who had birth weight less than 1500g was weaned six weeks later, at an average age of 21.7 weeks, compared with those born weighing more than 3000g, which were weaned at an average age of 15.2 weeks. However, just as in the present study, there was no effect of birth weight on age of introduction of complementary feeding[11].

In relation to maternal characteristics, most mothers were primiparous. This factor may be related to the size and weight of the baby, because, due to the lack of preparation of the uterus, usually the first child is smaller than the subsequent children[14]. Considerable proportion of mothers had low education levels and most families had a monthly income of less than R $ 1,500.00. The low level of education and low income are factors associated with low birth weight and, consequently, can interfere with child feeding[3]. The practice of exclusive breastfeeding was performed for only 12 (37.5%) children, and had a mean duration of 31 days. Breastfeeding complemented pointed an average of 75.5 days for 10 (31.2%) children who had already been weaned. The remaining 14 (43.8%) cases continued receiving supplemented breastfeeding. These data are overly bellow of what is recommended by the World Organization Health[3], which guides exclusive breastfeeding until six months of age and supplemented breastfeeding until two years, but does not specify any guidelines for preterm infants.

Similar values of exclusive breastfeeding were found in a study that aimed to evaluate the rate and pattern of breastfeeding in infants admitted to high risk nursery at the time of hospital discharge. The research showed the prevalence of exclusive breastfeeding of 36%, considering that these were before the implementation of the Baby Friendly Hospital Initiative. After the implementation of this service, the rate reached 54.6%[16]. Another study corroborates the findings, concluding that for progress in feeding premature babies requires a change of attitude in the hospital care, taking into account the humanization care. Also shows that, despite being a challenge, breastfeeding of preterm infants is feasible if there is appropriate support[17]. Another, conducted with 72 mothers of preterms with very low weight showed an increase in EBF rates and partial breastfeeding in the group receiving additional guidance[18].

In the current study, half of the sample used a pacifier and not found a significant association between pacifier use and the time of EBF, although this has since been found in a research with children born at term from 6 to 24 months in the same city, pointing out that in children exposed to pacifier it was observed decreased duration of exclusive breastfeeding [12]. This may reflect the presence of other factors that influence early weaning in this population of premature infants, which may interfere with the prevalence and time of EBF even before pacifier.

Another study, in which 89 preterm with low weight were monitored during office visits, also found an association between pacifier weaning: the lower the age of pacifier introduction the earlier was the partial weaning. Other data that influenced the early partial weaning were mothers who underwent milking and started or returned to work, and later introduced bottle feeding. Mothers who were feeling little milk, introduced bottle earlier[19]. In a retrospective study performed with the infants medical records who were assisted by the department of speech in the pediatric unit and outpatient speech therapy in a hospital-base, the authors pointed out that one of the factors that may be related to reduced prevalence of breastfeeding until the 6th month is the mother renunciation to the speech follow up[20].

The authors of a study of malnourished children suggested that prematurity, newborn hospitalization and, therefore, separation from the mother influenced the type of food offered, favoring the early supply with other milks or foods in addition to

breastfeeding[14]. Other factors identified in the study that assessed the prevalence of breastfeeding in infants admitted to the high risk nursery, at discharge, were the groups of children who received enteral feeding, which began feeding through glass, bottle and breast after 10 days of life, which made the translactation technique and received parenteral nutrition had a higher prevalence of non-exclusive breastfeeding in the discharge[16]. These characteristics may explain the low prevalence, low duration of exclusive breastfeeding and complementary breastfeeding and early introduction of other milks found in this study, since almost all children were fed with probe diet and because of its prematurity and gastric immaturity which delayed the initial sucking in the breast or bottle, remained hospitalized during this period.

Just as in the research conducted with at term infants between 6 and 24 months born in Canoas city[13], the current study also showed early introduction of liquids. This research found the introduction of tea with a median of 60 days and water median starting at 90 days, compared to the present study where the tea was introduced with a median of 90 days and water with a median of 120 days. Some authors[21] also found in a study about eating habits in children under 1 year of age, higher prevalence of tea consumption compared to water and juice. These results were attributed due to tea nutritional and medicinal purpose, thus suggesting the culture influence in this early introduction.

The Ministry of Health[3] recommends that complementary foods should be started at 6 months, in the form of porridge, purees, cereal or fruit; at 8 months should be started the solids offer and until 12 months the child must be fed with the same food as her family. If it was considered the children chronological age, the fruit and vegetable soup (pasty) offer was performed at the appropriate time, with a median of 180 days, and the cookie and meat offer (solid) was early, with a median of 180 and 210 days respectively. In another study with at term children, there was a median of 150 days for introduction of soup and fruit and the introduction of meat in this population also revealed a median of 210 days. The results shown in Table 2 showed a tendency that the lower the gestational age is, the later was the offer of milk, water and tea. This may reflect the period of hospitalization and the degree of prematurity may influence feeding in the first months, because from 5 or 6 months, the behavior does not follow the same pattern. It can be inferred that the higher chronological age is, the fewer was the differences between the degrees of prematurity.

In a study that aimed to identify dietary practices of premature infants through interviews with mothers of preterms until 12 months of corrected age, the authors found that 49% of prematures analyzed underwent weaning before four months of chronological age, however, analyzing the standpoint of corrected age, this percentage rises to 95%. Likewise in the present study, the authors used as reference, a guide for newborns feeding, however, the authors state that this kind of comparison is inappropriate because the guides were designed for term infants. They also point out that the use of chronological age or corrected age to calculate the time of weaning in preterm infants complicates the interpretation of results. Suggests that the weight would be a more appropriate measure to wean preterm infants, however, this could delay the introduction of complementary foods for months and subsequently could cause feeding problems. Finally, the study highlighted the need to develop practical guidelines to appropriate complementary feeding for premature babies for responsible and health professionals[12].

In this research by questioning responsible about the sources of obtaining information for introduction of complementary feeding, most cited the doctor, the second most cited was the audiologist and the third most cited were family members. Nutritionist and child health handbook were also mentioned. Because children who took part of the study sample had spent some time in hospital, the parents had contact with doctors and speech therapists who could inform them and due to clinic pediatric monitoring or to outpatient of the nursery high risk many of these patients are instructed by the pediatrician during medical appointment.

As in the present study, the aim was to investigate the dietary transition of term infants, having at the time of study between 5 and 8 months, the percentage of responsible who reported having received the guidance of health professionals is not consistent with the high percentage of inadequacy found in the study diet. The authors believe it is possible that the habits and beliefs of the family are directing the dietary pattern of the child, standing up the guidance received by the mothers in the medical appointment. The same authors also found that mothers indicated as a reason for not following the rules the child's refusal, grandmother's interference and practicality of porridge preparation in relation to salty food [22].

By questioning the parents if, in their opinion, their children had feeding difficulties, the result was lesser than directly asking about every difficulty alone (vomiting, nausea, coughing, gagging, crying, rejection). These data suggest the hypothesis that parents do not perceive these behaviors as difficulties, but they consider these as a ordinary or

normal behavior, demonstrating a lack of parental knowledge about healthy eating habits on children.

It was emphasized the importance of parents being well acquaintance about appropriate behavior and feeding habits. Authors explained that while eating disorders are in the act of eating disorders, feeding disorders are disorders in giving to eat, to feed someone unable to feed themselves on their own. Whereas in the first years of life, children are extremely dependent on their responsible, in relation to food, until they reach sufficient autonomy and do not require more assistance from others, the difficulties and problems that may arise in this context, necessarily involve the feeding-feeder dyad. Therefore, the responsible, usually the mother, is integrated in the etiology of feeding disorders[23]. Other authors claim that childhood eating problems go beyond the specific characteristics of the child and reflect the influence of various external factors that affect the environment of small child on several levels at once, and may also be exacerbated by the management strategies of the resposible[24].

Another variable mentioned, in the current study, by the children responsible was frequent nausea or vomiting after eating. Data collected in a study in London through interviews with parents of 201 children younger than 7 years with feeding difficulties analyzed what could have contributed to the development of eating problems. The authors report that prematurity, low birth weight and regular or frequent vomiting were commonly found in the children stories[25].

One of the most common gastrointestinal manifestations in childhood is gastroesophageal reflux. In the first months of life are common vomiting and regurgitation, which tend to improve with age and maturity of the operating mechanism of the inferior esophageal sphincter[7]. In a study which aimed to verify the occurrence of feeding problems in patients with gastroesophageal reflux disease (GERD), it was observed that children with GERD had a higher prevalence of feeding problems and behavioral stomathognatic disorders when compared to healthy children. It was also observed that the association between GERD and disorders of the oral-motor functions can generate feeding problems, increased feeding time and no changes on oral feed patterns[26].

In the present study, there was association between food refusal, low weight and extreme prematurity. This may reflect the longer period of intervention and stress that these infants spent during the neonatal ICU. After a traumatic event - such as gagging, vomiting, or common procedures in emergency or ICU environments such as insertion of an endotracheal tube, nasogastric or enteral - the baby begins to show partial or complete food refusal. Because of technological advances, these procedures are becoming increasingly frequent[11].

In evaluating the structures and functions of the stomatognathic system, the most frequent alterations were: absence of labial sealing; flaccidity of lips, tongue and cheeks, high hard palate; sucking, swallowing and breathing incoordenation. A Research whose objective was to evaluate the oral skills of children born preterm noted that the labial proper was present in 85.7% of the population of babies at six months of corrected age[27]. The same study found that children born preterm at 4 and 6 months of corrected age had impaired labial sealing during suction and difficulties in using the spoon and cup for feeding. An ondotopediatric literature review concluded that one of the oral alteration most found in preterm infants are palate changes, because the pressure of the tracheal tube or the laryngoscope would be responsible for such changes, inhibiting the normal growth of this structure. Authors report that premature babies have hypotonia and hyperreactivity to environmental stimuli, plus a number of factors that may explain the difficulties with sucking, breathing and swallowing incoordination[29].

It was found association between lips, tongue and cheeks flaccidity with extreme prematurity. In a study which evaluated the development of 55 infants with corrected chronological age between 4 and 5 months, born preterm, found that infants with lower gestational age at birth (between 29 and 34 weeks) showed higher rate of risk signs in evaluation of sensory oral motor development, when compared to those with higher gestational age (35-36 weeks), suggesting a possible association between gestational age and development of the oral sensory motor system[10], which corroborates the findings of the current research.

CONCLUSION

The findings of this study provided valuable insights about the nutritional profile of the sample of premature studies. It was found that exclusive breastfeeding was little practiced in this population, thus introducing milk and other liquids earlier in children's diets.

Breastfeeding complementation showed to be of low prevalence and had low level of duration, being far from the Ministry of Health recommendation, although it is emphasized that there is no specific food guide for premature infants. If it considered the children's chronological age, offering pasty was performed appropriately and offering solids was earlier.

From the data collected, it was found that most of the parents said that the doctor was the main reference on the guidelines about introduction of complementary feeding.

Regarding the presence of deleterious oral habits, the data showed that half of the population studied used pacifier and most makes bottle feeding.

Just over half of the population evaluated had complaints about feeding difficulty and there was significant association between extreme prematurity, extremely low weight and food refusal.

RESUMO

Objetivo: caracterizar o desenvolvimento da alimentação de um grupo de prematuros, entre três e 12 meses, nascidos em Canoas/RS, verificando o tipo de aleitamento, época de introdução da alimentação complementar, hábitos orais deletérios, orientações recebidas, dificuldades alimentares e perfil sociodemográfico. **Métodos:** essa pesquisa foi avaliada e aprovada pelo comitê de ética da da ULBRA sob Nº. 2011-480H CEP-ULBRA. Trata-se de um estudo descritivo, quantitativo e transversal. Foi realizada entrevista com os responsáveis e avaliação de 32 crianças nascidas pré-termo que compareceram às consultas de seguimento em um hospital em Canoas. **Resultados:** constatou-se que o aleitamento materno exclusivo foi realizado por apenas 37,5% (N=12) crianças e a média de duração foi de 31 dias. O oferecimento de líquidos apresentou introdução precoce; a introdução de pastosos foi realizada na época adequada e a introdução de sólidos foi realizada precocemente, considerando a idade cronológica das crianças. Os pais relataram que 53,1% (N=17) dos bebês possuíam dificuldades alimentares. Foi encontrada associação (p=0,004) entre recusa alimentar, prematuridade extrema e extremo baixo peso. Ainda foi observada associação (p=0,047) entre flacidez de lábios, língua e bochechas e prematuridade extrema. **Conclusão:** o aleitamento materno exclusivo foi pouco praticado e a amamentação complementada apresentou baixa prevalência e baixos índices de duração. Pouco mais da metade da população apresentou queixa de dificuldade alimentar e houve associação entre prematuridade extrema, extremo baixo peso e recusa alimentar. Ainda foi encontrada associação entre flacidez de lábios, língua e bochechas e prematuridade extrema. Fica evidente a necessidade do desenvolvimento de pesquisas mais amplas na área.

DESCRITORES: Prematuro; Aleitamento Materno; Suplementação Alimentar; Fonoaudiologia

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Received on: March 12, 2013
Accepted on: June 25, 2013

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