PRETERM AND LATE PRETERM INFANTS: THEIR DIFFERENCES AND BREASTFEEDING

Prematuros e prematuros tardios: suas diferenças e o aleitamento materno

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ABSTRACT

Purpose: to verify the differences between preterm and late preterm infants in relation to the duration of breastfeeding and exclusive breastfeeding causes and consequences of early weaning. Furthermore, the use of oxygen therapy and feeding tube, number of speech therapy sessions and length of hospital stay was observed. **Methods:** exploratory and longitudinal field research. Eighty two (82) mothers of preterm babies participated in the study. The categorical data were summarized by absolute and relative frequency as compared to the total of patients in each studied group. Numerical data was summarized by average, median, standard deviation, minimum value and maximum value. Quantitative data was compared against the non-parametric Mann-Whitney test and the qualitative variables were compared against the test of equality of two proportions. **Results:** there was statistical significance between the groups of preterm babies regarding the Apgar variables, hospitalization time, duration of use of the feeding tube, number of speech therapy sessions, duration of oxygen therapy and type of mechanical ventilation. **Conclusion:** this research showed that late preterm infants had lower usage time probe and oxygen therapy, fewer speech therapy sessions and shorter hospital stay, making indispensable a different view between the two groups of preterm infants.

KEYWORDS: Infant, Premature; Gestational Age; Breast Feeding

INTRODUCTION

At birth, preterm infants have their own skills of their step maturativa. They may show immaturity and lack of coordination of the functions of sucking, swallowing and breathing, cough reflex and gastric immaturity, as well as smaller organization of behavioral states of sleep and wakefulness¹. The exposure of these to neonatal intensive care and such an early interactional history requires not yet existing skills, burdening their development process².

For oral feeding, the newborn must have rhythm and coordination between sucking, swallowing and breathing³. However, studies have focused on premature child and some have dismissed peculiar attention to a group called late preterm infants whose

gestational age is between 34 to 36.6 weeks representing ³/₄ of the number of infants preterm newborn

It is known that the suction held during lactation in breastfeeding breast provides the proper development of the functions and speech organs of the newborn⁶, as well as nutritional, immunological, emotional and economic benefits, providing greater protection against infections, reduces the risk of respiratory failure, apnea and bronchopulmonary dysplasia⁷⁻⁹.

However, some researchers¹⁰⁻¹² have shown in their studies, little success of exclusive breast-feeding in preterm and low birth weight. Currently, Brazil has adopted a health policy aimed at the promotion, protection and encouragement of breastfeeding as an example the implementation of Kangaroo wards for children with low birth weight, the institution of the National Policy and Incentive

Conflict of interest: non-existent

⁽PN)⁴.These have considerable importance since they are the same representing most of the newly born hospitalized in intensive care units (ICUs)⁵.

It is known that the suction held during lactation in breastfeeding breast provides the proper devel-

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Program to Breastfeeding mother, the inauguration of the Human Milk Banks, the Declaration of the Innocenti, the creation of the Initiative Baby Friendly Hospital strategy, the creation of the Initiative Unit Baby-Friendly and support groups in encouraging breastfeeding, in addition to national campaigns encouraging breastfeeding.

Nevertheless, there are still significant differences between premature infants less than 34 weeks gestational age and late preterm infants. The first ones may not be able to breastfeed because they are neurologically immature¹, require greater technological support and longer hospital stay and are more prone to complications during the hospital stay.

Thus, the objective of this study is to verify the differences between preterm and late preterm infants with regard to the duration of breastfeeding and exclusive breastfeeding, causes and consequences of early weaning. Furthermore, the use of oxygen therapy and feeding tube, the number of speech therapy sessions and the length of hospital stay were observed.

METHODS

The project was approved by the Research Ethics Committee of the Health Sciences State University of Alagoas/ Universidade Estadual de Ciências da Saúde de Alagoas (UNCISAL) and the Federal University of São Paulo/ Universidade Federal de São Paulo (UNIFESP), under protocol no745/07 and 1226/09, respectively. It is a prospective longitudinal field study.

For this research we carried out the sample size calculation for a proportion of finite population, held in an electronic calculator, available on the website http://lia.uncisal.edu.br/ensino/pdf2/CTA Media finita.xls, whose value of population (N) considered was of 2.659 children, a value obtained from the DataSUS website for the number of premature children born in Singapore in 2008. The estimated value of the reduced variable (Z) was 1.96 for an alpha value equal to 0.05 and the ratio (p) in this study was 0.5 and the tolerable error consideration (E) is equal to 0.1. The considered confidence interval was set at 95%.

The participants were 93 mothers of preterm babies who were born in the Santa Monica Maternity School, however, 82 questionnaires were analyzed, as three mothers did not attended the second appointment and eight other mothers had twin children, and the need to disregard one of the children by draw to not generate a statistical error of data duplication. To compare premature, it was established two groups: Preterm Newborns (PN)

consists of 64 preterm infants up to 33.6 weeks gestational age and Late Preterm Newborns (LPN) with 18 preterm infants between 34 and 36.6 weeks.

The inclusion criteria of individuals in the study were mothers of preterm babies up to one year old. And the exclusion criteria were mothers of preterm babies diagnosed with genetic syndromes, oral motor and/or congenital malformations or previously diagnosed neurological problems.

The mothers, legal guardians of the babies, were informed of the purpose of the research, read and signed the Informed Consent Term and answered a standardized questionnaire developed by the authors, being the same divided into baby's and mother's identification data, hospital information, experience with breastfeeding, early weaning causes, which was divided into four groups (educational, cultural, socioeconomic and anatomofunctional factors) and consequences of early weaning (diarrhea, pneumonia, harmful oral habits and infections).

Additional data collection was carried out from the records of premature infants, for variables, such as: type and duration of oxygen therapy, it was made use of superficial O₂, tube type and usage time, number of speech therapy sessions, type of oral diet In the transition phase, place and length of hospital stay. To this end, the Risk Protection and Confidentiality Term was carried out.

The sample was collected in the period from August 2008 to November 2009. During the study, 47 mothers of preterm infants were followed up and for the remaining it was just accomplished the interview because they had already done early weaning. The primary variable of this study was gestational age.

In descriptive statistics, categorical data were summarized by means of absolute frequency (N) and on the total number of patients in each group (%). Numerical data were summarized by means of statistics such as: mean, median, standard deviation, minimum and maximum values. Quantitative data was compared with the nonparametric Mann-Whitney test and qualitative variables were compared to the test of equality of two proportions.

Statistical significance was set at p <0.05. The analysis and graphics were performed with the use of the software: SPSS V16, Minitab 15 and Excel Office 200si

RESULTS

In the present study the average gestational age was 35 weeks, 78% of the sample was PN and 22% were late PN. Regarding exclusive breastfeeding time in preterm, the average value was of 121.6 days and 50% of mothers did not exclusively breastfeed their preterm infants. Results of this research are

described and analyzed in tables and graphs that are presented below.

Table 1 – Comparison between Preterm infants and Preterm infants Late for quantitative variables

		Mean	Median	Standard Deviation	Q1	Q3	n	IC	Value of p
Birtha Weight	PN	1.455	1.470	270	1.298	1.678	64	65	0,073
	LPN	1.601	1.650	221	1.460	1.745	18	112	
Apgar in 5'	PN	8,4	9	1,3	8	9	65	0,3	0,006*
	LPN	9,3	9	0,5	9	10	15	0,2	
Age of mother	PN	25,3	25	6,7	19	30	64	1,6	0,593
	LPN	26,3	24	7,3	21	31	18	3,7	
Education	PN	7,5	8	3,6	5	10	64	0,9	0,354
	LPN	8,3	8	2,6	7	11	18	1,3	
ICU time	PN	13,5	11	16,5	0	21	64	3,9	0,001*
	LPN	1,1	0	2,7	0	0	18	1,4	
IC time	PN	6,5	1	10,3	0	11	64	2,5	0,046*
	LPN	8,7	7	7,1	4	13	18	3,6	
R time	PN	21,4	21	11,0	14	25	64	2,6	0,009*
	LPN	14,6	16	6,0	11	17	18	3,0	
Child's hospital stay	PN	41,5	36	20,4	29	51	64	4,9	<0,001*
	LPN	29,8	23	7,3	19	29	18	3,7	
Probe usage time	PN	29,2	28	18,3	16	38	64	4,4	0,001*
	LPN	18,7	14	8,4	9	18	18	4,2	
Number of speech therapy sessions	PN	5,7	5	3,9	3	8	64	0,9	0,007*
	LPN	3,7	3	2,3	2	4	18	1,2	
Oxihood Time	PN	3,0	2	3,4	1	3	64	0,8	0,089
	LPN	2,5	1	4,2	0	2	18	2,1	
CPAP Time	PN	5,5	3	6,7	2	5	65	1,6	0,002*
	LPN	1,7	1	1,8	0	3	15	0,9	
Tube time	PN	2,7	0	8,0	0	3	63	1,9	0,010*
	LPN	0,0	0	0,0	0	0	18	- X -	
O ₂ Time	PN	12,8	7	13,1	4	13	63	3,2	0,001*
	LPN	5,8	3	5,2	1	5	18	2,6	
AM Time (Days)	PN	135,2	150	59,2	105	180	64	14,2	0,786
	LPN	142,2	180	54,2	120	180	18	27,4	
AME Time (Days)	PN	123,2	120	66,7	75	180	64	16,0	0,956
	LPN	124,3	161	68,6	86	180	18	34,7	

Key: PN: preterm newborn.; LPN: late preterm newborns; ICU: Intensive Care Unit; IC: intermediate care; R: Rooming; breastfeeding: Breastfeeding; exclusive breastfeeding. * Significant Values (p≤0,05) −Mann-Whitney Test

Table 2 – Comparison between Preterm infants and Preterm infants Late for qualitative variables

		Preterm Newborn		Late Preterm Newborn		Value of p	
		N	%	n	%	· ·	
Condor	Female	33	50,7%	4	26,7%	0.001	
Gender	Male	31	49,3%	14	73,3%	0,091	
Dirth Type	Surgical	35	56,7%	14	80,0%	0,095	
Birth Type	Normal	29	43,3%	4	20,0%	0,093	
Fotal growth SCA	Não	45	64,2%	3	20,0%	0,002*	
Fetal growth SGA	Sim	19	35,8%	12	80,0%		
	Housewife	41	35,8%	12	40,0%		
Mother's occupation	Works outside home	23	64,2%	6	60,0%	0,761	
Ctable menital status	Stable	58	91,0%	17	86,7%	0.005	
Stable marital status	Unstable	6	9,0%	1	13,3%	0,605	
Oral transition aug	No	22	32,8%	7	46,7%	0.044	
Oral transition cup	Yes	45	67,2%	8	53,3%	0,311	
Onal translation, translatotics	No	37	55,2%	11	73,3%	0.400	
Oral transition translactation	Yes	30	44,8%	4	26,7%	0,198	
Onal translition played finance	No	41	61,2%	10	66,7%	0.000	
Oral transition gloved finger	Yes	26	38,8%	5	33,3%	0,693	
Oral transition chest stimulus	No	42	62,7%	9	60,0%	0.046	
Oral transition chest stimulus	Yes	25	37,3%	6	40,0%	0,846	
Association stimuli and transition	No	27	40,3%	9	60,0%	0,165	
Association stimuli oral transition	Yes	40	59,7%	6	40,0%		
Vantilatory augment	No	0	0,0%	3	26,7%	<0,001*	
Ventilatory support	Yes	63	100,0%	15	73,3%		
T	No	8	11,9%	5	33,3%	0,040*	
Type ventilatory support – Oxihood	Yes	59	88,1%	10	66,7%		
Tura vantilatam avanant CDAD	No	5	7,5%	6	40%	10.004*	
Type ventilatory support – CPAP	Yes	62	92,5%	9	60,0%	<0,001*	
Type ventiletery support. Tube	No	44	65,7%	15	100,0%	0.007*	
Type ventilatory support – Tube	Yes	23	34,3%	0	0,0%	0,007*	
Vantilatory augment association	No	10	14,9%	7	46,7%	0.006*	
Ventilatory support association	Yes	57	85,1%	8	53,3%	0,006*	
\\/_ an in a	No	27	42,2%	8	53,3%	0.416	
Weaning	Yes	37	57,8%	7	46,7%	0,416	
\\/a a pin a a di casti a pal fa ataua	No	35	52,2%	9	60,0%	0.500	
Weaning educational factors	Yes	32	47,8%	6	40,0%	0,586	
Maning again aganamia factors	No	61	91,0%	14	93,3%	0.774	
Weaning socio-economic factors	Yes	6	9,0%	1	6,7%	0,774	
Wooning cultural factors	No	43	64,2%	11	73,3%	0.400	
Weaning cultural factors	Yes	24	35,8%	4	26,7%	0,499	
Weaning anatomical and	No	66	98,5%	15	100,0%	0.004	
physiological factors	Yes	1	1,5%	0	0,0%	0,634	
Dragonog of parefyrational halfite	No	29	43,3%	8	53,3%	0.400	
Presence of parafunctional habits	Yes	38	56,7%	7	46,7%	0,480	

Key: SGA: small for gestational age. * Significant Values ($p \le 0.05$) – Two proportion equality test

Table 3 - Duration of breastfeeding and exclusive breastfeeding of groups

	Time	PN	LPN	Total
Breastfeeding	180 days and more	47 (73,4%)	17 (94,4%)	64 (78%)
	> 180 days	17 (26,6%)	1 (5,6%)	18 (22%)
Exclusive breastfeeding	180 days and more	31 (48,4%)	10 (55,6%)	41 (50%)
	> 180 days	33 (51,6)	8 (44,4%)	41 (50%)

Key: Pn: preterm newborn.; LPN: late preterm newborn

Causes of early weaning

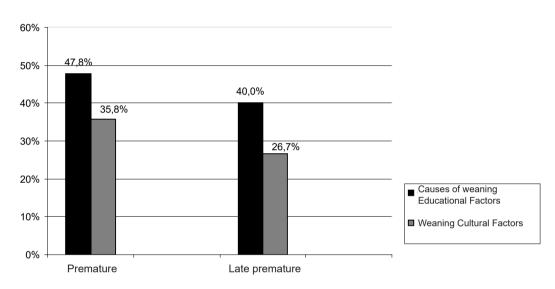


Figure 1. Causes of early weaning among the groups

Consequences of early weaning

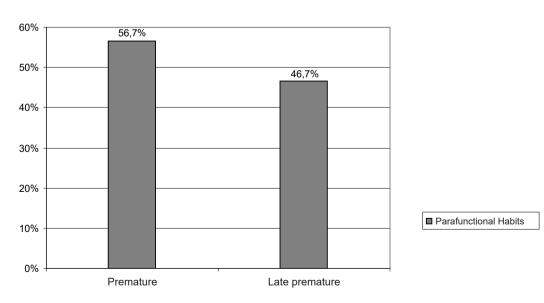


Figure 2. Consequences of early weaning among groups

DISCUSSION

In the present study 86.6% of the newborns presented Apgar scores between 8-10 in the 5th minute of life, 12.2% between 7-4 and 1.2% with Apgar of three or less. Study found an Apgar score between 9/10 in 72% of cases in the 5th minute of life 13. In another study, the Apgar score of eight or more was found in 87% of NBs8. The data was similar in both studies perhaps because it was the same population, preterm infants.

In the present study the average hospitalization of preterm infants was 38.2 days, ranging from 13 to 122 days. By distributing preterm in groups, those who had gestational age up to 33.6 weeks showed an average hospital stay of 41.4 days and the ones above 34 weeks, of 24.3 days. Research has found that 67% of NBs remained hospitalized for 30 days or less¹⁴. The results of both surveys are similar, but in the first, time of hospitalization was slightly higher since it is referral maternity care to pregnant women at risk.

In the current study, the length of stay of preterms and late preterm infants in the ICU was of 13.5 and 1.1, respectively. Study subdivided premature into groups according to weight and gestational age, and it was observed the time of ICU stay of 28 days for preterm infants with GA of less than 30 weeks, 13.3 for premature between 30 and 33.6 weeks and 9.8 days for preterm of 34 weeks or more. But the length of hospital stay was equal to 36.6, 25 and 24.3 days, respectively¹⁵. No studies were found that recount the time of hospitalization for preterm infants in neonatal intensive care unit and intermediate care. The difference found in both studies may be due to the fact that in the first study, it was not taken into account the birth weight.

The average number of speech therapy sessions for preterm was equal to 5.1. Premature up to 33.6 weeks showed an average of speech therapy sessions greater than the late preterm, 5.7 and 3.7, respectively, with statistical significance between the groups. In a case study with two preterm twins, were performed 10 sessions of speech therapy¹⁶. The difference between the studies is due to the characteristics of the sample or even because it is a sample of 82 babies in comparison with a case study with 2 twins.

Regarding the time of use of oxygen, we found out that NBs had an average of 11 days, in the group of preterm infants up to 33.6 weeks the average was 12.8 days and the group of late preterm infants was 5.8 days. A carried out research identified that 90% of PN received oxygen therapy for 2.8 days and the time on mechanical ventilation was significantly shorter, the older gestational age and birth weight¹⁷. Children who were on mechanical ventilation for a long period present a delay in the development of the swallowing function¹⁸. As in the aforementioned studies, in the present study the preterm infants with gestational age less than 33.6 weeks made use of oxygen for a longer period, since the lower the gestational age, less development and maturation of the baby and more susceptible to neonatal morbidities compared to preterm infants with gestational age.

When comparing the PN groups with late PN, we observed that the variables of birth weight, age and maternal education, probe usage time, duration of breastfeeding and exclusive breastfeeding were not statistically significant.

Despite the difficulties encountered by preterm infants of lower gestational age, in the present study 73.4% of preterm infants up to 33.6 weeks and 94.4% of late preterm infants were breastfed up to six months or more. In another study the breastfeeding occurred until the first 30 days of life in 98.1% of cases and in the sixth month there was a drop to 70.1%¹⁹. Research had with finding the median breastfeeding of 199.8 days, where in the first month 90.4% of the children were breastfed, in the fourth month 64.7% and in the sixth month 54.4%²⁰. This is due to a multidisciplinary team specializing in Kangaroo Mother Method that held the appropriate assistance to the mother-baby and their family.

In terms of exclusive breastfeeding, the premature group to 33.6 weeks the mean value was 123.2 days and late preterm 124.3 days. Still, 42.2% of premature infants with gestational age were exclusively breastfed against 55.5% of late preterm. The time of exclusive breastfeeding of infants up to one month old was of 64.8% and of six months old this figure fell to 9.6%. For breastfeeding, the prevalence in the first month was of 98.1% and for the sixth month of 70.1% 19. Exclusive breastfeeding rates were found in the first month of 62.1% and in the sixth month of 17.7%²¹. The rates of breastfeeding in preterm infants are still below the recommended by the WHO in all reported studies.

Comparing the groups for qualitative variables (Table 2), it was found that there was a greater number of children who are small for gestational age (SGA) in the group of late PN (80 %), with statistical significance between the groups. The SGA infants have a higher risk of neonatal death than those who did not show signs of intrauterine growth delay22. Late premature with fetal growth restriction showed a greater time of stay in the ICU and neonatal complications than appropriate for gestational age (AGA)17. It is believed that this difference should be occurring because of dichotomized variables that present 67% efficiency, with a great loss of susceptibility of the study, which may lead to spurious findings in the statistical analysis.

With regard to the variable type of ventilatory support there was statistical difference among the groups for all types surveyed. Late preterm have not made use of endotracheal tube, while 34.3% of preterm infants under the age of 33.6 weeks needed to be intubated. No studies were found that differed the types of respiratory support in preterm infants, becoming necessary additional studies to clarify the effect of each of these perinatal brackets in the development of the respiratory system of the preterm.

The other variables: gender, birth type, occupation and maternal marital status, dietary transition, causes and consequences of weaning showed not statistically relevant in the current research.

In the present study 58.2% of preterm and 46.7% of late preterm infants were weaned early (Table 3).

In the present study the causes of early weaning (Table 1) were caused by educational and cultural factors for both groups, the socioeconomic and anatomical and physiological factors were not reported by the mothers of preterm infants as a cause of weaning in the present study. In the same study when comparing the two groups, the preterm infants showed a higher percentage of early weaning than the late preterm for both factors. Study points out the educational causes of early weaning, being poor handling the most prominent²². Study shows that 17.8% of the mothers responded as cause of weaning the weak milk and 14.7% that the milk dried up ²³.

Among the cultural factors pacifier and bottle use were reported as the cause of weaning. In the present study, the use of a pacifier and bottle

was also the main consequence of early weaning. Authors observed a significant correlation between weaning and the use of pacifier and bottle^{19,24,25}. Breastfed children up to one month of age who used a pacifier, had a 2.8 times greater chance of being weaned by the sixth month¹⁹. Pacifier sucking habits, bottle feeding may have contributed to premature weaning and possible changes in the evolution of oral sensorimotor system⁶.

Also in this study, the deleterious oral habits were presented as the main effect of early weaning. Perhaps the harmful oral habits that mix as cause and consequence of early weaning since in our country the culture of pacifier and bottle usage is very deeply rooted in our families, as well as the premature weaning leads to not preparing the speech organs and as a result, the need for baby's sucking is not satisfied, thus the use of an artificial suction nozzle becomes necessary, even if bringing future damage because they are not the most appropriate way of stimulation for them.

CONCLUSION

The present research has shown that there are significant differences between preterm and late preterm, where the last show fewer complications, fewer speech therapy sessions, shorter hospital stay, moreover, the preterm of up to 33.6 weeks require a longer hospital support as use probe and ventilatory support, and although not statistically significant, they had shorter breastfeeding and exclusive breastfeeding, as well as increased presence of parafunctional habits, when compared to preterm late, becoming indispensable a different look between the two groups of preterm infants.

RESUMO

Objetivo: verificar se há diferenças entre recém nascidos prematuros e prematuros tardios no que se refere ao tempo de aleitamento materno e aleitamento materno exclusivo causas e consequências do desmame precoce. Ademais, foi observado o uso de oxigenoterapia e sonda para alimentação, número de sessões de fonoterapia e o tempo de internação. Métodos: pesquisa de campo, de caráter exploratório e longitudinal. Participaram do estudo 82 mães de prematuros. Os dados categóricos foram resumidos através de frequência absoluta e relativa ao total de pacientes em cada grupo estudado. Dados numéricos foram resumidos em média, mediana, desvio padrão, valor mínimo e valor máximo. Os dados quantitativos foram comparados com o teste não paramétrico de Mann-Whitney e as variáveis qualitativas foram comparadas com o teste de igualdade de duas proporções. Resultados: houve significância estatística entre recém-nascidos prematuros e recém-nascidos prematuros tardios para as variáveis Apgar, tempo de internação, tempo de uso da sonda, número de sessões de fonoterapia, tempo de oxigenoterapia e tipo de ventilação mecânica. Conclusão: a presente pesquisa mostrou que os prematuros tardios apresentaram menor tempo de uso de sonda e oxigenoterapia, menor número de sessões de fonoterapia e menor tempo de internação hospitalar, fazendo-se imprescindível um olhar diferenciado entre os dois grupos de prematuros.

DESCRITORES: Prematuro; Idade Gestacional; Aleitamento Materno

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