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ORIGINAL ARTICLE

Prevalence of exclusive breastfeeding in newborns discharged from a neonatal intensive care unit

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Abstract

Objective: To define the prevalence of exclusive breastfeeding in a group of newborns given only breastmilk or breastmilk supplemented with formula during hospitalization at a neonatal intensive care unit 15 days after discharge and potentially related factors. **Method:** This observational descriptive prospective study included all newborns admitted to a neonatal intensive care unit between May and July 2019 given only breastmilk or breastmilk supplemented with formula during hospitalization. Fifteen days after discharge, we called their mothers to enquire about what they had been feeding their babies with since. **Results:** Almost two thirds (62.3%) of the newborns were on breastmilk 15 days after discharge. Birth weight and gestational age were significantly greater and length of hospitalization shorter in the group fed with breastmilk 15 days after discharge ($p<0.05$). A positive correlation was found between breastfeeding at the time of discharge and breastfeeding 15 days after discharge ($p<0.05$). **Conclusion:** The establishment and maintenance of breastfeeding among hospitalized newborns is challenging and requires structure and strong processes. Factors such as birth weight, gestational age, and length of hospitalization correlated with the prevalence of breastfeeding after discharge. Exclusive breastfeeding at the time of discharge also correlated with maintenance of breastfeeding 15 days after discharge.

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INTRODUCTION

Breastfeeding sets the background for the development of strong ties between mothers and their children and yields evident benefits to the health of infants, mothers, and society in general. The World Health Organization (WHO)[1] and the Ministry of Health[2] recommend exclusive breastfeeding for the first six months of life and that it be kept until infants are aged two years in combination with other food items. Benefits for children include adequate specific nutrition, immune advantages, lower allergenic potential, and lower mortality by infectious disease[3]. In the long term, breastfeeding decreases the incidence of conditions such as obesity, hypercholesterolemia, hypertension, and diabetes, in addition to contributing to improved infant cognitive development[4].

Breastfeeding is influenced by a number of socioeconomic and cultural factors[5], such as level of education, income, maternal age, need to go back to work, and encouragement from the spouse and family members. Factors related to pregnancy and delivery such as parity, birth weight, gestational age, and neonatal complications also affect the prevalence of breastfeeding[6].

Newborns in intensive care are kept away from their mothers and face greater difficulty initiating and continuing breastfeeding. Factors related to clinical conditions affecting the infant that prevent them from nursing, use of a gastric tube, and the mother's level of stress contribute to early weaning[7]. Preterm newborns account for a substantial portion of the patients seen at neonatal intensive care units and present with other conditions that may adversely affect breastfeeding, such as having an immature neurologic system, poor suction and swallowing reflexes, and difficulty staying alert for long[8].

This study had the following goals: 1) To define the prevalence of exclusive breastfeeding in a group of newborns given only breastmilk or breastmilk supplemented with formula during hospitalization at a neonatal intensive care unit 15 days after discharge; and 2) to describe the epidemiological characteristics of infants and analyze factors related to exclusive breastfeeding after discharge.

METHOD

This observational descriptive prospective study was carried out at a public municipal hospital located in the countryside of the State of São Paulo, in which about 500 children are born every month. The hospital was granted the seal from the Children's Friend Hospital Initiative (IHAC)[9] and has implemented the first stage of the Kangaroo Method[10]. The study included newborns discharged from a neonatal intensive care unit between May 23 and July 31 2019.

The study included patients discharged and sent home with their mothers. At the time of discharge, they were fed only breastmilk or breastmilk supplemented with formula. The mothers of the included infants signed an informed consent term.

Patients with contraindication for breastfeeding, newborns fed with formula alone, and infants sent to a shelter or the home of a relative other than the mother were excluded.

Data were collected from the medical charts of the patients and telephone interviews with their mothers based on a structured questionnaire 15 days after discharge. The timing of the interview – 15 days after discharge – was defined considering the time it might take for families to adjust to the arrival of the infant after hospitalization and that the interventions introduced during hospitalization might still be in effect.

The following variables were analyzed:

- Birth weight
- Gestational age
- Size of offspring
- Total length of hospitalization
- Type of feeding protocol in effect at discharge: breastfeeding only or breastmilk with formula in a cup or bottle.
- Type of feeding protocol 15 days after birth: exclusive breastfeeding or formula.

Statistical analysis was performed with software package GraphPad Prism. Descriptive statistics and comparisons between non-parametric data were run with the aid of the Mann-Whitney test and Fisher's exact test for correlations, with a confidence interval set at 95% and a significance level of 5%.

The institution's Research Ethics Committee approved the study and granted it certificate no.121.724. All participating mothers signed an informed consent term.

RESULTS

Eighty-six infants were discharged from the neonatal intensive care unit between May 23 and July 31, 2019. Eighteen patients were excluded; 16 were fed with formula, one was sent to Child Protective Services, and one had a mother diagnosed with HIV.

The study included 68 patients. Forty-three were exclusively breastfed at the time of discharge, seven were on breastmilk and supplementation with formula in a cup, and 18 on breastmilk and supplementation with formula in a bottle. At the time of discharge, 63.2% were exclusively breastfed.

The mothers were interviewed over the phone with a structured questionnaire. Fifteen mothers did not take the call; nine (21%) were mothers of infants exclusively breastfed at the time of discharge and six (24%) had children fed with breastmilk supplemented with formula. The children of the 15 mothers who refused to take the call were excluded from the study.

Thirty-three of the 53 patients (62.3%) considered in our analysis were exclusively breastfed 15 days after discharge.

For purposes of statistical analysis, the infants were divided into two groups based on the type of feeding protocol 15 days after discharge: Exclusive Breastfeeding (Group 1) or Breastmilk Supplemented with Formula (Group 2).

The epidemiological characteristics based on the feeding protocol 15 days after discharge are shown in Table 1.

Table 1. Weight (g), Gestational age (weeks), maternal age (years), length of hospitalization (days) based on feeding protocol 15 days after discharge. Group 1: exclusive breastfeeding 15 days after discharge. Group 2: breastmilk supplemented with formula 15 days after discharge. Data presented as medians and interquartile ranges:

	Group 1 (n=33)	Group 2 (n=20)	p-value*
Birth weight	2760 (1895-3345)	1853 (1433-2384)	0.0048
Gestational age	37 (34-39)	33.5 (33-35)	0.0022
Maternal age	25 (20-33)	23 (21.25-31)	0.9383
Length of hospitalization	10 (7-13.5)	18 (12-27.75)	0.0027

*Mann-Whitney test

Table 2 shows the feeding protocol at the time of discharge versus the protocol in effect 15 days after discharge.

Table 2. Feeding protocol at the time of discharge versus the protocol in effect 15 days after discharge. Group 1: exclusive breastfeeding 15 days after discharge. Group 2: breastmilk supplemented with formula 15 after discharge.

	Group 1 (n=33)	Group 2 (n=20)
Exclusive breastfeeding at discharge	29	5
Breastmilk and supplementation with formula in a cup	3	4
Breastmilk and supplementation with formula in a bottle	1	11

Figures 1 and 2 describe the prevalence of exclusive breastfeeding 15 days after discharge versus the feeding protocol at the time of discharge.

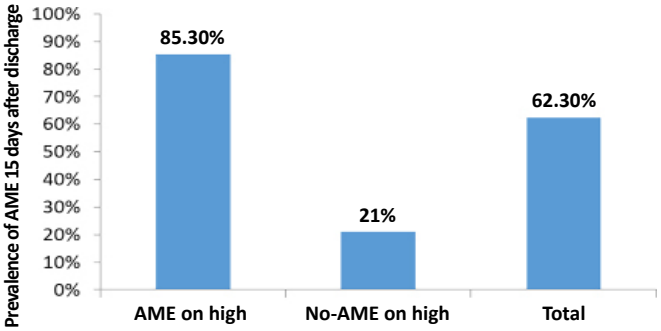


Figure 1. Prevalence of exclusive breastfeeding 15 days after discharge versus the feeding protocol at the time of discharge

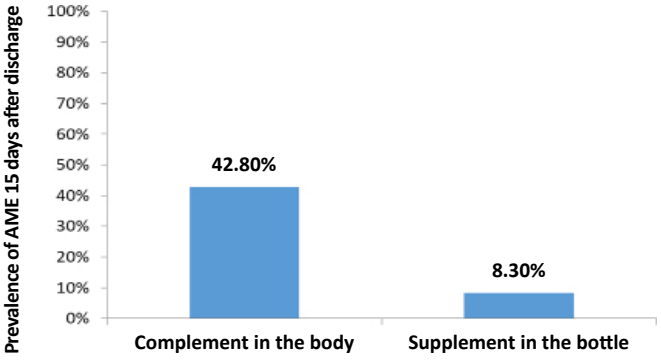


Figure 2. Prevalence of breastfeeding 15 days after discharge according to type of supplementation with formula at discharge – cup vs. bottle.

Fisher's exact test showed a correlation between exclusive breastfeeding at discharge and 15 days after discharge ($p< 0.0001$), but not between supplementation with a cup or bottle and exclusive breastfeeding 15 days after discharge.

Fifteen days after discharge, 16 patients (30.2%) were on breastmilk supplemented with formula and four (7.5%) were fed formula in a bottle. These four patients were fed formula in a bottle at the time of discharge. One patient given breastmilk and supplementation with formula in a bottle was exclusive breastfed 15 days after discharge.

DISCUSSION

Breastfeeding is an important element in strategies devised to promote the health of infants and mothers. Special circumstances such as admission to a neonatal intensive care unit might separate infants and mothers and thus impede breastfeeding[11].

In this study, gestational age and birth weight were significantly greater in the group of newborns breastfeeding 15 after discharge. Preterm newborns present different degrees of physiological maturity and are more prone to needing resuscitation maneuvers in the delivery room[12], which may compromise early skin-to-skin contact, breastfeeding, and introduction to rooming-in care[13]. They also present with clinical conditions that require interventions such as tracheal intubation, noninvasive ventilation, and placement of a feeding tube[14]. Thus, effective initiation and maintenance of exclusive breastfeeding or breastfeeding with formula supplementation may be compromised. Birth weight is also an important element, as low birth weight newborns are breastfed less often[15]. The Kangaroo Method[10] is an important tool to encourage breastfeeding of preterm newborns, which integrates mothers and other family members into the care provided to newborns. It requires the presence of both parents in the neonatal unit and their active participation while the infant is in the hospital to improve breastfeeding and its various physiological and emotional aspects.

Length of hospitalization was significantly shorter for newborns who were exclusively breastfed 15 days after discharge. Hospitalization of newborns can cause a series of deleterious impacts on the initiation of breastfeeding, such as limited access and presence of the parents and invasive care procedures. A series of protocols have been developed by the Children's Friend Hospital Initiative to support and encourage breastfeeding,[9] which contemplate actions devised to properly initiate and maintain breastfeeding, particularly for infants kept away from their mothers during hospitalization. The rate of exclusive breastfeeding at discharge before and after the implementation of the Children's Friend Hospital Initiative increased from 36% to 54.6% at a maternity hospital in the Brazilian state of Minas Gerais[16].

The stress and emotional distress caused by the hospitalization of a baby adversely affects breastfeeding.

A qualitative study on the difficulty of breastfeeding hospitalized newborns[17] found common themes such as facing the frailty of preterm newborns, the neonatal intensive care unit environment, and the need for logistical support. Having a newborn in hospital generates feelings of fear, anguish, and insecurity in parents. Such feelings must be identified and managed by the care team[18]. The interaction between mothers and the care team in these trying times is essential for the proper establishment of breastfeeding[19,20].

The type of feeding protocol at hospital discharge had an impact on the prevalence of exclusive breastfeeding 15 days after discharge. The prevalence of exclusive breastfeeding at 15 days was greater among infants who were exclusively breastfed at the time of discharge than their peers discharged on breastmilk and supplementation with formula. Thus, every effort should be made to ensure that breastfeeding is well established and maintained during hospitalization. The prevalence of exclusive breastfeeding at discharge varies between services[21,22]. In our study, the prevalence of exclusive breastfeeding at discharge was 63.2%; however, it should be noted that the study population did not consist only of preterm newborns, which may have contributed to the higher prevalence.

Another point consider was the loss of patients during follow-up. Nineteen percent of the exclusively breastfed infants at discharge and 24% of the infants given breastmilk and supplementation with formula were lost during follow-up, thereby decreasing the number of patients included in data analysis 15 days after discharge.

The way in which supplementation was offered at discharge had an impact on the prevalence of exclusive breastfeeding 15 days after discharge. Exclusive breastfeeding was more prevalent among infants discharged on milk supplementation with a cup. The use of the cup in supplementation, when needed, aids in the maintenance of breastfeeding[23], since the movements of the orofacial muscles stimulated by the cup are similar to those stimulated by breastfeeding[24]. The cup is an effective means to provide infants with the supplementation they need, but it requires adequate training of the team and the mother so that it is used properly[25,26]. In our study, four infants were weaned and were discharged feeding with a bottle. One of these patients was exclusively breastfed 15 days after discharge.

CONCLUSION

Establishing and maintaining breastfeeding in newborns requiring hospitalization is challenging that requires significant effort in terms of structure and processes, as well as staff training and support for the mother and family.

Factors such as birth weight, gestational age, and length of hospitalization correlate with prevalence of breastfeeding after discharge. Exclusive breastfeeding at discharge favored breastfeeding 15 days after discharge. The use of a cup as a form of providing milk supplementation, when needed, favored breastfeeding 15 days after hospital discharge.

REFERENCES

1. Organização Mundial da Saúde. Global Strategy for Infant and Young Child Feeding, The Optimal Duration of Exclusive Breastfeeding. Genebra: Organização Mundial da saúde, 2001.
2. Ministério da Saúde. Saúde da criança: nutrição infantil: aleitamento materno e alimentação complementar. Cadernos de Atenção Básica 23, Brasília: Ministério da Saúde, 2009.
3. Organização Mundial da Saúde. Collaborative Study Team on the Role of Breastfeedind on the Prevention of Infant Mortality. Effect of breastfeeding on infant and child mortality due to infectious diseases in less developed countries: a pooled analysis. Lancet. 2000;355:451-55.
4. Horta BL, Bahl R, Martines JC, Victora CG. Evidence on the long-term effects of breastfeeding: systematic review and meta-analyses. Suíça: Organização Mundial da Saúde, 2007.
5. Escobar AMU, Ogawa AR, Hiratsuka M, Kawashita MY, Teruya PY, Grisi S et al. Aleitamento materno e condições socioeconômico-culturais: fatores que levam ao desmame precoce. Rev. Bras. Saude Mater. Infant. 2002;2:253-261.
6. Ramos CV, Almeida JAG. Alegações maternas para o desmame: estudo qualitativo. J. Pediatr. 2003;79:385-390.
7. Paiva CVA, Saburido KAL, Vasconcelos MN, Silva MAM. Breastfeeding a hospitalized newborn: Difficulties of mothers with children in neonatal intensive and intermediate care units. Revista Mineira de Enfermagem. 2013;17:924-931.
8. Lopes AM, Silva GRF, Rocha SS, Avelino FVSD, Soares LS. Amamentação em prematuros: caracterização do binômio mãe-filho e auto eficácia materna. Rev. Bras. de Promoção à Saúde. 2015;28:32-43.
9. Ministério da Saúde. Portaria no 1.153, de 22 de maio de 2014. Redefine os critérios de habilitação da Iniciativa Hospital Amigo da Criança (IHAC), como estratégia de promoção, proteção e apoio ao aleitamento materno e à saúde integral da criança e da mulher, no âmbito do Sistema Único de Saúde.
10. Ministério da Saúde. Atenção Humanizada ao Recém-nascido: Método Canguru. Manual Técnico. 3ª Edição. 2017.
11. Rodrigues AP, Martins EL, Trojahn TC, Padoin SMM, Paula CC, Tronco CS. Manutenção do aleitamento materno de recém-nascidos pré-termo: revisão integrativa da literatura Rev. Eletr. Enf. 2013;15:253-64. Disponível em: https://revistas.ufg.br/fen/article/view/17067
12. Guinsburg R, Almeida M.F.B. Reanimação do Prematuro <34 semanas em sala de parto: Diretrizes 2016 da Sociedade Brasileira de Pediatria. Sociedade Brasileira de Pediatria. 2016.
13. Ministério da Saúde. Portaria no. 2068, de 21 de outubro de 2016. Institui diretrizes para a organização da atenção integral e humanizada à mulher e ao recém-nascido no Alojamento Conjunto.
14. Portal de Boas Práticas em Saúde da Mulher, da Criança e do Adolescente. Fundação Oswaldo Cruz. Atenção ao Recém-Nascido. Principais Questões sobre Cuidados com o Recém-Nascido na UTI Neonatal. Encontro com Especialistas realizado em 18/07/2019.
15. Xavier CC, Jorge SM, Gonçalves AL. Prevalência do aleitamento materno em recém-nascidos de baixo peso. Rev. Saude Publica. 1991;25:381-7.
16. Bicalho-Mancini PG, Velasquez-Melendez G. Aleitamento materno exclusivo na alta de recém-nascidos internados em berçário de alto risco e os fatores associados a essa prática. J. Pediatr. 2004;80:241-248.
17. Serra SOA, Scochi CGS. Dificuldades Maternas no Processo de Aleitamento Materno de Prematuros em uma UTI Neonatal. Rev Latino-am Enfermagem. 2004;12:597-605.
18. Souza KMO, Ferreira SD. Assistência humanizada em UTI neonatal: os sentidos e as limitações identificadas pelos profissionais de saúde. Ciênc saúde colet. 2010;15:471-80.
19. Uema RTB, Tacla MTGM, Zani AV, Souza SNDH, Rossetto EG, Santos JCT. Insucesso na amamentação do prematuro: alegações da equipe. Semina: Ciências Biológicas e da Saúde. Londrina. 2015;6:199-208.

20. Silva CC, Santos LF, Peixoto MKAV, Oliveira NES, Paula GR, Oliveira LMAC. Assistência de Enfermagem a familiares de Recém-nascidos em Unidade de Terapia Intensiva Neonatal: Revisão Integrativa. Cienc Cuid Saude. 2013;12:804-812.

21. Leite AM, Scochi CGS, Ferreira FY, Góes FSN, Fujinaga CI, Ferecini GM. Alimentação Láctea e prevalência do aleitamento materno em prematuros durante internação em um Hospital Amigo da Criança de Ribeirão Preto-SP, Brasil. Cienc Cuid Saude. 2008;7:145-154.

22. Serra SOA. Alimentação de bebês recém-nascidos prematuros e dificuldades vivenciadas pelas mães no AM: a prática em uma UTI neonatal de Cuiabá – MT. 2001. [Dissertação]. Ribeirão Preto: Universidade de São Paulo; 2001.

23. Pedras CTPA, Pinto EALC, Mezzacappa MA. Uso do copo e da mamadeira e o aleitamento materno em recém-nascidos prematuros e a termo: um revisão sistemática. Rev Bras Saúde Matern Infant. 2008;8:163-169.

24. Vargas CL, Steidl EM, Berwig LC, Weinmann ARM. Influência do uso do copo ou mamadeira durante a transição alimentar de recém-nascidos pré-termo sobre o sistema estomatognático e as taxas de aleitamento materno. Disturb Comun. 2014;26:327-336.

25. Lima VP, Melo AM. Uso do copinho no Alojamento Canguru. Rev CEFAC. 2008;10:126-133.

26. Pereira ADC, Brito DO, Rodrigues LCB, Araújo VC. O Copinho Oferecido pelos Cuidadores Aos Recém-nascidos Prematuros Hospitalizados. Rev. CEFAC. 2015;17:1270-1277.