Original Article

Knowledge and attitude on donation of breast milk in hospitalized mothers

Cuiqin Huang, Wei Han, Yajing Fan*

Department of Obstetrics, Shanghai Jiaotong University affiliated Sixth People's Hospital, Shanghai, China

A B S T R A C T

Objective: To understand the knowledge and attitude of breast milk donation among hospitalized mothers, and provide data to support the establishment and development of breast milk bank in China.
Methods: By convenient sampling method, 200 hospitalized mothers were interviewed by 'The Questionnaire on Knowledge and Attitude toward Breast Milk Donation in Hospitalized Mothers' in Shanghai Sixth People's Hospital from September 2015 to November 2018.
Results: The overall correct answer rate about the knowledge on breast milk donation was not high (29.23%). The average score of breast milk donation attitude was relatively low, with a score of 32.97 ± 4.30.
Conclusion: The average correct answer rate for breast milk donation knowledge was relatively low, and the attitude on breast milk donation was not positive. The scope and intensity of breast milk donation are suggested to be expanded to promote the construction of breast milk banks.

Conocimiento y actitud sobre la donación de leche materna en madres hospitalizadas

R E S U M E N

Objetivo: Investigar el conocimiento y la actitud sobre la donación de leche materna entre las madres hospitalizadas, y aportar datos para respaldar el establecimiento y desarrollo del banco de leche materna en China.
Métodos: Mediante el método de muestreo conveniente, se entrevistó a 200 madres hospitalizadas utilizando el Cuestionario de conocimiento y actitud sobre la donación de leche materna en madres hospitalizadas en el Hospital Popular Sixth de Shanghai desde septiembre de 2015 hasta noviembre de 2018.
Resultados: Lasa de respuesta correcta global acerca del conocimiento de la donación de leche materna no fue alta (29,23%). La puntuación media de la actitud sobre la donación de leche materna fue relativamente baja: 32,97 ± 4,30.
Conclusión: La tasa de respuesta correcta media para el conocimiento sobre la donación de leche materna fue relativamente baja, y la actitud sobre la donación de leche materna no fue positiva. El alcance y la intensidad de la donación de leche materna deben expandirse, para promover la construcción de bancos de leche materna.

Introduction

Breast milk, having the species-specific nutrients and abundant protective factors, is the best choice of food to nourish infants.[1] Many studies have shown that breastfeeding significantly reduces the infant mortality and prevents respiratory and diarrheal infections, leading to decreased hospitalization rates of preterm infants.[2,3] However, deficiency and the inappropriate breast milk (such as from mothers carrying the hepatitis B virus) lead to the incapability of the mother to feed their neonates. In this case, breast milk donation is important to provide human milk for mothers with insufficient breast milk, and to meet the needs of special neonates for milk.[4] Human milk banks are specialized services to collect, store and supply donated breast milk to newborns who need breast milk.[5] At present, there is still a lack of systematic and scientific research on breast milk donation in China. In the present study, we investigated the knowledge and attitude on the breast milk donation among hospitalized mothers, which could help us to further understand the current status of breast milk donation and to provide specific guidance for the promotion of knowledge on human milk donation.

* Corresponding author.
E-mail address: fan_nr@163.com (Y. Fan).

Method

Participants and study design

200 cases of hospitalized mothers from Department of Obstetrics, Shanghai Sixth People's Hospital were recruited in our study by convenience sampling. The study was approved by the Ethics Committee of Shanghai Sixth People's Hospital (Approval code SHSPH20150811Z), all participants in this study have given written informed consents.

Inclusion criteria were hospitalized mothers, age $\geq$20 years, able to read and write mandarin, and obtained and signed an informed consent. Exclusion criteria were postpartum hemorrhage, acute mastitis, postpartum depression, mental disorders and unable to read, write or communicate.

Statistical analysis

All data were independently entered by two investigators, between whom data comparison and logic verification were performed. Once the data entry was determined to be correct, the data would be entered into the final database and locked. Statistical analysis was performed using SPSS 19.0. Normally distributed data were described as mean and standard deviation, while non-normally distributed data were described as median and the interquartile range. The t-test was used to compare the data with normal distribution, while the Man-Whitney U test was used to compare the data with non-normal distribution. The difference was deemed statistically significant when $p < 0.05$.

Results

Breast milk donation knowledge among hospitalized mothers

The general information on hospitalized mothers were listed in Table I in online Appendix. The basic knowledge on breast milk and the knowledge on breast milk donation of hospitalized mothers were shown in Tables II and III in online Appendix. Next, we examined the factors affecting the correct rate for breast milk donation knowledge in hospitalized mothers (Table 1). The factors affecting the correctness of breast milk donation were mainly related to age, education level and family income. We found that the younger the age, the higher the score. In addition, the education level was positively correlated to the score. Besides, the score was also affected by the monthly family income: the higher the family income, the higher the score. However, the correct rate for breast milk donation knowledge in hospitalized mothers was not influenced by the marital status and the number of children they raised.

Breast milk donation attitude among hospitalized mothers

The scores of attitudes regarding breast milk donation were shown in Table IV in online Appendix. Next, we examined the factors affecting the correct rate for breast milk donation attitude in hospitalized mothers. According to the data in Table 2, the marital status of the mothers had a significant influence on the correct rate for breast milk donation attitude. Single mothers had the highest scores for breast milk donation attitude. When compared with single or divorced mothers, married mothers had the lowest score for breast milk donation attitude. Moreover, the correct rate for breast milk donation attitude was also affected by the family income. When the family income was between 200,000 to 400,000 yuan/year, the mothers had the high-

Table 1
Comparison of breast milk donation knowledge scores of different characteristics of study subjects (N = 200).

Items	Mean ± SD	F	p
Age		3.565	0.001
<25 years old	0.18 ± 0.36		
25-45 years old	0.14 ± 0.18		
>45 years old	0.12 ± 0.24		
Education level		4.216	0.001
Undergraduate	0.16 ± 0.15		
Bachelor degree	0.18 ± 0.32		
Above bachelor degree	0.19 ± 0.13		
Marital status		1.235	0.086
Married	0.18 ± 0.26		
Single	0.17 ± 0.37		
Divorced	0.16 ± 0.16		
Number of children		0.236	0.256
1	0.16 ± 0.27		
2	0.17 ± 0.24		
3	0.18 ± 0.06		
Family income		0.353	0.007
<200,000 yuan/year	0.17 ± 0.18		
200,000-400,000 yuan/year	0.18 ± 0.26		
>400,000 yuan/year	0.19 ± 0.09		

SD: standard deviation.
Note: Comparison of knowledge scores of different ages, F = 3.565, p = 0.001, compared by LSD test, <25 years old and 25-45 years old 45 years old (p = 0.000 / p = 0.001), 25-45 years old and > 45 years old comparison (p = 0.001). The scores of knowledge of different educational levels were compared, F = 4.216, p = 0.001. After LSD test, the undergraduate degree is compared with the bachelor degree (p = 0.000 / p = 0.001), the bachelor degree is compared with the above (p = 0.001). Comparison of different household income knowledge scores, F = 0.353, p = 0.007, according to LSD test, family income <200,000 yuan/year is compared with the family income of 200,000-400,000 yuan/year or family income>400,000 yuan/year (p = 0.005 / p = 0.006), family income is 200,000 to 400,000 yuan/year is compared with family income is >400,000 yuan/year (p = 0.008).

Table 2
Comparison of scores of breast milk donation attitudes among different characteristics of study subjects (N = 200).

Item	Mean ± SD	F	p
Age		0.254	0.257
<25 years old	2.05 ± 0.14		
25-45 years old	2.08 ± 0.15		
>45 years old	2.06 ± 0.17		
Education level		0.362	0.198
Undergraduate	2.35 ± 0.26		
Bachelor degree	2.28 ± 0.27		
Above bachelor degree	2.26 ± 0.29		
Marital status		4.235	0.001
Married	2.12 ± 0.14		
Single	2.18 ± 0.18		
Divorced	2.16 ± 0.16		
Number of children		1.252	0.163
1	2.35 ± 0.26		
2	2.28 ± 0.27		
3	2.26 ± 0.29		
Family income		3.353	0.002
<200,000 yuan/year	2.32 ± 0.19		
200,000-400,000 yuan/year	2.35 ± 0.07		
>400,000 yuan/year	2.31 ± 0.15		

SD: standard deviation.
Note: Comparison of donation attitude scores of different marital status, F = 4.235, p = 0.001. After LSD test, married is compared with the unmarried or divorced (p = 0.001 / p = 0.001), unmarried is compared with divorced (p = 0.001). The scores of different household income donation attitudes were F = 3.353, p = 0.002. According to LSD test, family income <200,000 yuan/year compared with family income of 200,000 to 400,000 yuan/year (p = 0.001 / p = 0.002), family income of 200,000 to 400,000 yuan/year compared with family income >400,000 yuan/year (p = 0.004).

est scores for breast milk donation attitude. The correct rate for breast milk donation attitude in hospitalized mothers was not influenced by age, education level, or the number of children raised.

Discussion

Notably, in Table II in online Appendix, 25% of mothers don't even intend to begin breastfeeding. The possible reasons might include that mothers are afraid of deforming their bodies and breastfeeding is very hard; working mothers are too busy to breastfeed; and the marketing of milk powder merchants makes new mothers think that they can replace breastfeeding. This indicates that China's health education on breastfeeding knowledge is still insufficient, which is one of the reasons for the low rate of breastfeeding. If there is currently not great education and awareness around regular breastfeeding, then it will be extra difficult to educate mothers as well as health professionals about milk banks. It is hopeful that this survey could provide data to support for the establishment and development of breast milk banks in China, and to contribute to the promotion and development of breast milk donations.

It is worth noting that, our study was conducted in a single center with convenient sampling, which may impact the external validity of the data acquired. Therefore, a multi-center study of larger sample size randomly recruited should be performed to further verify the results obtained in our current study.

What is known about the topic?

Feeding premature infants with breast milk as soon as possible could effectively promote enteral nutrition, achieve full digestive tract nutritional levels and reduce the incidence of necrotizing enterocolitis. Premature infants should be fed with donated human breast milk when they are unable to obtain their own mother's breast milk.

What does this study add to the literature?

The study approved that the hospital maternal knowledge of donated milk right rate was very low and the attitude on the donation of breast milk is not very positive, which could be explained by reasons that donated milk in China belongs to new things and the publicity scope and strength are needed to be increased on the donation of human milk, leading to the conclusion that education of mothers should be strengthened and encouragement to breast milk donation and information should be provided.

Editor in charge

Mercedes Carrasco Portiño.

Transparency declaration

The corresponding author on behalf of the other authors guarantee the accuracy, transparency and honesty of the data and information contained in the study, that no relevant information has been omitted and that all discrepancies between authors have been adequately resolved and described.

Authorship contributions

C.Q. Huang and W. Han conceptualized and designed the study. Y.J. Fan drafted the manuscript and all co-authors participated equally in the revision and final approval of the manuscript.

Funding

Conflicts of interest

None.

Appendix. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.gaceta.2019.09.0131.

Bibliografía

1. Grzelak T, Wozniak U, Czyzewska K. The influence of natural feeding on human health: short- and long-term perspectives. Prz Gastroenterol. 2014;9:4–10.
2. Armstrong J, Reilly JJ. Child Health Information Team. Breastfeeding and lowering the risk of childhood obesity. Lancet. 2002;359:2003–4.
3. Picaud JC, Buffin R, Gremmo-Feger G, et al., Working group of the French Neonatal Society on fresh human milk use in preterm infants. Review concludes that specific recommendations are needed to harmonise the provision of fresh mother's milk to their preterm infants. Acta Paediatr. 2018;107:1145–55.
4. Dias CC, Figueiredo B. Breastfeeding and depression: a systematic review of the literature. J Affect Disord. 2015;171:142–54.
5. Borges MS, Oliveira AMM, Hattori WT, et al. Quality of human milk expressed in a human milk bank and at home. J Pediatr (Rio J). 2018;94:399–403.