



ORIGINAL ARTICLE

Correlation between hemoglobin levels of mothers and children on exclusive breastfeeding in the first six months of life^{☆,☆☆}



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KEYWORDS

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Abstract

Objective: To evaluate the correlation between hemoglobin levels of mothers and their children on exclusive breastfeeding in the first six months of life.

Methods: Cross-sectional study with 221 binomials (mother–child) enrolled in a breastfeeding support program, who were stratified into six groups according to the children's age group. The sample consisted of children born at term with normal weight, with no neonatal complications and whose mothers did not have anemia or infectious disease at the time of data collection. Interviews were carried out with the mothers, blood was collected by peripheral venipuncture from mothers and children, and children's anthropometric data were assessed. Pearson's correlation coefficients between the hemoglobin levels of mothers and children were calculated. Six multiple linear regression models were adjusted with regression coefficient estimates, considering as statistically significant associations with $p \leq 0.05$.

Results: The correlation coefficients of hemoglobin levels of mothers and children ranged from 0.253, at three months, to 0.601, at five months. The hemoglobin level of mothers

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^{☆☆} Study conducted at the Department of Pediatrics, Escola Paulista de Medicina (EPM), Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brazil.

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PALAVRAS-CHAVE

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was correlated with the hemoglobin level of their children at four months ($r = 0.578$) and at five months ($r = 0.601$). In the adjusted multiple linear regression, the regression coefficients were higher at four months ($\beta = 1.134$; $p = 0.002$) and at five months ($\beta = 0.845$; $p < 0.001$).

Conclusion: These findings allow for the conclusion that there is a correlation between the hemoglobin of mothers and the hemoglobin of their children on exclusive breastfeeding in the first six months of life.

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Correlação entre níveis de hemoglobina de mães e filhos em aleitamento materno exclusivo no primeiro semestre de vida

Resumo

Objetivo: Avaliar a correlação entre os níveis de hemoglobina de mães e de seus filhos em aleitamento materno exclusivo, no primeiro semestre de vida.

Métodos: Estudo transversal com 221 binômios (mãe-filho) matriculados em programa de incentivo ao aleitamento materno, que foram estratificados em seis grupos de acordo com a faixa etária das crianças. A amostra consistiu de crianças nascidas a termo, com peso normal, sem intercorrências neonatais e cujas mães não apresentavam doença infecciosa e anemia na época da coleta de dados. Foram realizadas entrevistas com as mães, coleta de sangue por punção de veia periférica das mães e das crianças e antropometria das crianças. Foram calculados os coeficientes de correlação de Pearson entre os níveis de hemoglobina das mães e das crianças. Foram ajustados seis modelos de regressão linear múltiplos com estimativas de coeficientes de regressão, considerando-se estatisticamente significantes associações com $p \leq 0,05$.

Resultados: Os coeficientes de correlação dos níveis de hemoglobina das mães e das crianças variaram entre 0,253, aos três meses, e 0,601, aos cinco meses. O nível de hemoglobina das mães esteve mais correlacionado com o das crianças aos quatro meses ($r = 0,578$) e aos cinco meses ($r = 0,601$). Na regressão linear múltipla ajustada, os coeficientes de regressão foram maiores aos quatro meses ($\beta = 1,134$; $p = 0,002$) e aos cinco meses ($\beta = 0,845$; $p < 0,001$).

Conclusão: Esses achados permitem concluir que há correlação entre a hemoglobina de mães e a hemoglobina de seus filhos em aleitamento materno exclusivo no primeiro semestre de vida.

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Introduction

In the first year of life, iron-deficiency anemia is associated with psychomotor and cognitive development problems, which may be irreversible even after appropriate treatment.¹ Therefore, knowledge of the risk factors, which may be already present in early life, is essential to support control and prevention strategies. In Brazil, the best estimates of the prevalence of anemia in infants and mothers are respectively 24.1% and 29.4%, highlighting the importance of the subject.²⁻⁴ Specifically, healthcare researchers have been discussing the influence of the nutritional status of maternal iron on the hemoglobin (Hb) levels of their children for several decades. As the concentrations of iron and lactoferrin in breast milk are needed to maintain body iron levels in the first months of life, maternal anemia could affect these concentrations in breast milk. However, two studies carried out by the same group of researchers in India, which evaluated the concentrations of iron and lactoferrin in anemic and nonanemic mothers' milk who breastfed exclusively for the first six months of life, concluded that both iron and lactoferrin concentrations had no association with the mothers' iron status.^{5,6}

The results of studies that evaluated the association between anemia in infants and maternal anemia remain controversial. While some studies suggest no association,⁷⁻¹⁰ others show evidence that children born to anemic or iron-deficient mothers more frequently develop iron-deficiency anemia in the first year of life, when compared to children of non-anemic mothers.¹¹⁻¹⁴ However, none of these studies investigated the influence of serum levels of maternal hemoglobin (Hb) on the children's Hb profile in a sample of exclusively breastfed infants, which affects the validity of their findings, as other sources of iron in the children's diets can be responsible for dissimilar findings, generating the controversy in the literature.

In this context, this study aimed to evaluate the correlation between Hb levels of mothers and their children on exclusive breastfeeding in the first six months of life.

Methods

This was a cross-sectional study of the correlation between Hb levels of mothers and their children's Hb. Mothers and children were recruited from a primary health care

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