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Maternal Body Mass Index, Dietary Intake and Socioeconomic Status: Differential Effects on Breast Milk Zinc, Copper and Iron Content

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ABSTRACT

Background: As breast milk micronutrients content are essential for health and growth of the infants, this study was conducted to determine the breast milk zinc, copper and iron concentrations and their possible correlations with maternal nutritional status, dietary intakes as well as socioeconomic status.
Methods: Breast milk samples and information on maternal anthropometric characteristics and dietary intake were collected from 90 Iranian lactating women with 3 different socioeconomic status who exclusively breastfed their infants. Concentrations of trace elements were analyzed using atomic absorption spectrophotometry. Nutritionist III program, Multiple Regression and ANOVA test were used for data analyses.
Results: The mean milk zinc, copper, and iron concentrations were 1.93 ± 0.71, 0.58 ± 0.32, and 0.81 ± 0.2 mg/l, respectively. In all three SES groups only zinc mean level was lower than the recommended range. A significant difference was observed in breast milk zinc, copper and iron concentration between high and low SES groups (Zn (P<0.001), Cu (P<0.001) and Fe (P<0.044)) and also moderate and low SES groups (Zn (P<0.03), Cu (P<0.001) and Fe (P<0.049)). After adjusting for maternal body mass index (BMI), socioeconomic status, mean dietary energy, zinc, copper, and iron intakes, there was a negative and significant association between maternal age and breast milk zinc (β=-0.28, P<0.034), copper (β=-0.18, P<0.048), and iron (β=-0.22, P<0.04) concentrations.
Conclusion: In low socioeconomic group with lower mean age, breast milk mineral levels were higher than others and there was no significant correlation between mineral levels and dietary intake. Hence it is supposed that maternal age may be better predictor of breast milk mineral levels.
Keywords: Breast Milk, Zinc, Copper, Iron, Infants' growth, Socioeconomic groups

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