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Association Between Zinc, Copper, and Iron Concentrations in Breast Milk and Growth of Healthy Infants in Tabriz, Iran

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Abstract The aims of this study were to determine the effect of breast milk zinc, copper, and iron concentrations on infants' growth and their possible correlations with maternal dietary intake. Milk samples and information on food intake were collected from 182 lactating women. Concentrations of zinc, copper, and iron in milk were analyzed using atomic absorption spectrophotometry. The infant's weight for age *Z*-score (WAZ) and height for age *Z*-score (HAZ) were calculated. The mean milk zinc, copper, and iron concentrations were 1.85±0.5, 0.53±0.3, and 0.85±0.2 mg/l, respectively. Only zinc mean level was lower than the recommended range. Association between zinc, copper, and iron concentrations of milk and WAZ or HAZ of infants were not significant. However, the WAZ of infants whose mothers' milk zinc was more than 2 mg/l was significantly ($P<0.039$) higher than for others. The mean dietary zinc (5.31±2.3 mg/day) and copper (1.16±0.7 mg/day) intake of mothers was significantly less than the required daily intake (RDA) recommendations ($P<0.05$). The mean dietary iron intake (11.8±8.2 mg/day) was significantly higher than RDA recommendation ($P<0.001$). No significant association was found between maternal mean dietary zinc, copper, and iron intakes with their concentrations in milk. Dietary consultation or/and zinc supplementation is suggested for lactating women and infants.

Keywords Breast milk · Zinc · Copper · Iron · Infants

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