Abstract


Maternal Folate and Cobalamin Status Predicts Vitamin Status in Newborns and 6-Month-Old Infants.


Institute of Basic Medical Sciences, Department of Nutrition, University of Oslo, 0316 Oslo, Norway.

OBJECTIVE: Our aim in this longitudinal study was to determine predictors of folate and cobalamin status in infancy.

METHODS: Data were collected from 364 mother-infant pairs with blood measurements from pregnancy (approximately 18 wk; n = 149), newborns (cord serum; n = 361), and 6-mo-old partially or exclusively breast-fed children (n = 221).

RESULTS: Serum/plasma folate, cobalamin, holotranscobalamin (holoTC), holohaptocorrin (holoHC), methylmalonic acid (MMA) and total homocysteine (tHcy) at birth and 6 mo were related to maternal vitamin status, parity, lifestyle variables, and anthropometry. In multivariate analyses, the strongest predictors of folate at birth and 6 mo were maternal folate and cord folate, respectively (P < 0.01). Maternal holoTC best predicted cobalamin status at birth (positively associated with cord cobalamin, holoTC, and holoHC; inversely with MMA and tHcy; P <= 0.001), whereas maternal and cord holoHC were the strongest predictors of cobalamin status at 6 mo (positively associated with cobalamin, holoTC, holoHC; inversely with tHcy; P < 0.05). The association between cobalamin status and parity was negative at birth but positive at 6 mo. Birth weight, female sex, and smoking were associated with low cobalamin or high tHcy at birth but showed no or opposite associations at 6 mo.

CONCLUSION: In conclusion, maternal folate and cobalamin status exerts a long-term positive effect on infant vitamin status. The effect of smoking, parity and female sex on cobalamin status did not persist beyond the newborn period. Maternal holoTC was the superior predictor of newborn cobalamin status, while holoHC could be a valuable marker for predicting cobalamin status later in infancy.

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