

PREVALENCE OF SUBCLINICAL VITAMIN K DEFICIENCY IN
THAI NEWBORNS: RELATIONSHIP TO MATERNAL
PHYLLOQUINONE INTAKES AND DELIVERY RISK.

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Abstract

BACKGROUND: Vitamin K deficiency bleeding (VKDB) in infants is a rare but serious worldwide problem, particularly in Southeast Asia. Apart from exclusive breast feeding, little is known of the maternofetal risk factors that predispose infants to VKDB.

OBJECTIVES: To assess (a) the relationships between functional vitamin K insufficiency in a large cohort of Thai mothers to that of their newborn infants and (b) the importance of delivery risk factors and maternal intakes of vitamin K as determinants of neonatal vitamin K status.

METHODS: Vitamin K status was assessed by measuring undercarboxylated prothrombin (protein induced by vitamin K absence/antagonist-II (PIVKA-II)) in 683 mothers and in the cord blood of their babies by sensitive immunoassay. Dietary phylloquinone (vitamin K(1); K(1)) intakes were assessed in 106 of these mothers by food frequency questionnaire.

RESULTS: Babies were categorised as 'normal' (n=590) or 'high risk' (n=93) according to birth weight and delivery type. PIVKA-II was detectable (>0.15 arbitrary units (AU)/ml) in 85 mothers (12.4%) and 109

babies (16.0%) with median levels of 0.78 and 1.04 AU/ml in mothers and babies, respectively. 'High-risk' babies had a higher median detectable PIVKA-II concentration than 'normal-risk' babies (3.1 vs 1.0 AU/ml, $p=0.02$) and a higher prevalence of clinically relevant (>5.0 AU/ml) concentrations ($p=0.006$). Mothers with K(1) intakes below the US recommended 'adequate intake' for pregnancy (<90 microg/day) had a higher prevalence of detectable PIVKA-II (18.8%) than those with adequate intakes (3.3%) ($p=0.01$).

CONCLUSIONS: Functional, clinically relevant, vitamin K insufficiency was more common in 'high-risk' than 'normal-risk' newborns. Vitamin K insufficiency in mothers was linked to lower dietary K(1) intakes during pregnancy.

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