Vitamin D, PTH and calcium levels in pregnant women and their neonates.

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OBJECTIVES: To determine the prevalence of vitamin D deficiency in pregnant women and their neonates and to examine factors associated with vitamin D deficiency.

DESIGN AND PATIENTS: Population-based study of pregnant women and their neonates from South-eastern Sydney, Australia.

MEASUREMENTS: Serum 25 hydroxy-vitamin D (25-OHD), PTH, calcium, albumin, phosphate and alkaline phosphatase were measured in women at 23-32 weeks gestation and on cord blood at delivery. Maternal skin phototype was recorded using the Fitzpatrick scale.

RESULTS: Vitamin D deficiency (defined as 25-OHD < or = 25 nmol/l) was found in 144 of 971 (15%) women and 98 of 901 (11%) neonates. Median 25-OHD was 52 nmol/l (range 17-174) in mothers and 60 nmol/l (17-245) in neonates. Maternal 25-OHD levels varied by season, with lowest levels in late winter/early spring (P < 0.001). Factors associated with maternal vitamin D deficiency in multiple logistic regression were (OR, 95% CI): maternal birthplace outside Australia: 2.2 (1.4-3.5, P = 0.001), dark skin phototype: 2.7 (1.6-4.5, P < 0.001), wearing a veil: 21.7 (11.7-40.3, P < 0.001) and younger maternal age: 0.93 (0.89-0.97, P = 0.001). Maternal vitamin D deficiency increased the risk of neonatal vitamin D deficiency (OR 17.2, 95% CI 8.8-34.3) and birth weight was lower among infants of deficient vs. sufficient mothers: mean (SD) 3245 g (545) vs. 3453 g (555), P < 0.001.

CONCLUSIONS: Vitamin D deficiency is common among pregnant women; immigrant, veiled and dark skinned women are at greatest risk. Maternal vitamin D deficiency increases the risk of neonatal vitamin D deficiency and lower birth weight.

PMID: 18573121