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Cobalamin Deficiency During Pregnancy Expressed as Elevated Urine Methylmalonic Acid Levels Determined by a Photometric Assay

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**Abstract:** Aim: Deficiency of cobalamin and folate during pregnancy is associated with megaloblastic anemia. Lower levels of folate and vitamin B12 were reported in mothers whose offspring had neural tube defects compared to unaffected controls. Increased methylmalonic acid (MMA) levels are a sensitive indicator of mild vitamin B12 deficiency and elevated homocysteine levels denote vitamin B12 or folate deficiency. We aimed to evaluate cobalamin state in pregnancy by using urine MMA levels determined by an economic spectrophotometric method. Materials and Methods: For this cross-sectional study, plasma total homocysteine (tHcy), serum folate and vitamin B12, and urine MMA levels were measured in 186 uncomplicated pregnant women (30 in first, 58 in second and 98 in third trimester). MMA measurements were made in first morning urine samples with normalizing by creatinine concentrations. Results: The tHcy concentrations were not elevated (<11.0 mmol/L) and folate levels were not found reduced (<5.0 ng/ml) in almost all subjects, whereas 36% of the pregnant women had elevated urine MMA levels (>6.0 mmol/mol creatinine). Nearly half of the group (99 women) had low vitamin B12 concentrations (180 pg/ml). We found higher folate levels in second and third trimesters than in first trimester. No other parameter was found different according to trimester. Conclusions: The photometric urine MMA determination method showed an increased functional cobalamin deficiency that could not be indicated by tHcy levels during pregnancy. By using this economic spectrophotometric method, urine MMA should be measured in every pregnant patient with or without low serum vitamin B12 before treatment with vitamin B12 injections is instituted.

**Key Words:** Cobalamin deficiency, pregnancy, urine MMA

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