

Renal function markers as predictors of pregnancy induced hypertension and gestational diabetes mellitus.

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Objective: The aim of the current study was to examine the association between renal function markers during the first 20 weeks of pregnancy and the development of hypertensive disorders and gestational diabetes mellitus (GDM) during the second half of the pregnancy.

Methods: The study population included all registered births (n=9341) between 2001-2007 in Soroka University Medical Center. The linear by linear chi-square test and ROC curves were used to determine the association between creatinine, urea and uric acid level during the first 20 weeks gestation and pregnancy induced hypertension and gestational diabetes mellitus (GDM).

Results: Uric acid (UA) level showed the highest association with pregnancy complications. The lowest and highest prevalence of GDM was found in the $UA \leq 2.4$ mEq/l group (6.3%) and in the $UA > 5.5$ mEq/l group (10.5%) ($p < 0.001$) respectively. Mild preeclampsia was diagnosed in 2.1% of the patients from the $UA \leq 2.4$ mEq/l group, 3.3% from the $UA = 2.5-4.0$ mEq/l group, 5.3% of the $UA = 4.1-5.5$ mEq/l group and 4.5% from the $UA > 5.5$ mEq/l group ($p < 0.001$). Three multiple logistic regression models controlling for maternal age, showed that UA level is an independent risk factor for both GDM and mild preeclampsia. ROC curve demonstrated a significance but weak association between creatinine level in the first 20 weeks of pregnancy and the development of mild and severe preeclampsia in the second half of pregnancy (area under the curve for of 0.54, 95% CI 0.51-0.57 $p = 0.02$, and 0.56, 95% CI 0.50-0.62 $p = 0.033$; respectively). No association was found with GDM. Urea levels weren't associated with either pregnancy induced hypertension or GDM.

Conclusions. Uric acid and creatinine but not urea levels during the first 20 weeks of pregnancy are associated with higher risk for the development of pregnancy induced hypertension.