

Comparative study between levels of maternal serum Cell Free Fetal DNA and Uric acid in

pregnant women with and without Preeclampsia

Short title: maternal serum cffDNA Vs uric acid in preeclampsia

Abstract

Objectives: In this study, we aimed to compare the value of cell-free fetal DNA (cffDNA) and uric acid in maternal serum as markers for pre-eclampsia and subsequently as possible predictors in the future.

Study Design: This cross-section study including pregnant women attending Cairo University maternity hospital, Cairo, Egypt. This study included 120 patients in two groups; study group and control group with 60 patients each.

Results: The mean level of CffDNA was 19.6 ± 5.4 and 578.9 ± 185.3 mg/dl in the control and preeclampsia patients respectively; $p < 0.01$. The mean level of cell free fetal DNA was significantly higher among primigravida with severe preeclampsia; 743.2 mg/dl compared with 295.3 mg/dl in multiparous women with severe preeclampsia; $p < 0.01$. Similarly, the mean level of cell free fetal DNA was significantly higher among primigravida with mild preeclampsia; 543.3900 mg/dl compared with 372.2464 mg/dl among the multiparous women with mild preeclampsia; $p < 0.01$.

The mean level of uric acid in control group was 2.9 mg/dl compared with 4.7 mg/dl in the preeclampsia group; $p < 0.01$. The mean level of uric acid was significantly higher among primigravida with severe preeclampsia; 749.6 mg/dl compared with 295.3 mg/dl in multiparous women with severe preeclampsia; $p < 0.01$. Similarly, the mean level of uric acid was higher among primigravida with mild preeclampsia; 3.6 mg/dl compared with 3.4 mg/dl among the 2 multiparous women with mild preeclampsia; however, there was no significant difference, $p = 0.072$.

Conclusion: We found that cffDNA is a better marker of pre-eclampsia than uric acid. Compared with uric acid, cffDNA is more sensitive as it has shown elevated levels with mild pre-eclampsia and more elevations with severe pre-eclampsia. Different age groups did not affect the levels of both markers. However, parity seemed to affect Cell-Free Fetal DNA level as it had higher values in primigravida.

Keywords: fetal DNA, cffDNA, uric acid, Preeclampsia.